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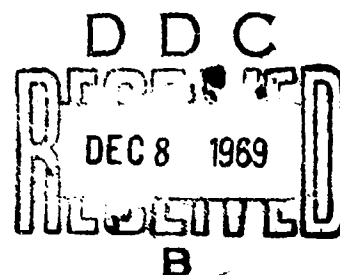
AD-697 300

USE OF COMPUTERS IN EDUCATION
VOLUME I OF II VOLUMES

A DDC BIBLIOGRAPHY

July 1959 - June 1969

DDC-TAS-69-62-I



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November 1969

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AD-697 300

USE OF COMPUTERS IN EDUCATION

VOLUME I OF II VOLUMES

A DDC BIBLIOGRAPHY

JULY 1959 - JUNE 1969

DDC-TAS-69-62-1

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NOVEMBER 1969

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**CAMERON STATION
ALEXANDRIA, VIRGINIA 22314**

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FOREWORD

This is Volume I of a two-volume bibliography on the Use of Computers in Education.

This bibliography contains 338 unclassified references covering the period from July 1959 through June 1969. However, the computer search covers the period from January 1953 through September 1969.

Success in the use of computerized education and training systems is evaluated. Reports on programmed instruction indicate the feasibility of a wide range of uses of computers in education, in training, and in adaptive learning techniques. Individual entries are arranged in AD number sequence.

The computer-generated indexes are Corporate Author/Monitoring Agency and Personal Author.

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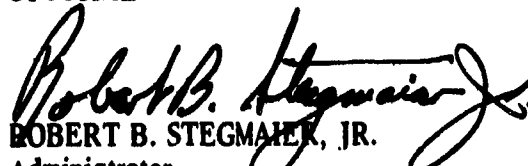

ROBERT B. STEGMAIER, JR.
Administrator
Defense Documentation Center

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-228 766

GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
AN ANNOTATED BIBLIOGRAPHY ON THE AUTOMATION OF
INSTRUCTION

(U)

JUL 59 38P DARBY, CHARLES L.:

UNCLASSIFIED REPORT

DESCRIPTORS: •LEARNING, AUTOMATION, BIBLIOGRAPHIES,
EDUCATION, PROGRAMMING (COMPUTERS), TEACHING MACHINES,
TRAINING DEVICES

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-259 994

BROOKLYN COLL N Y

RESEARCH IN THE AUTOMATION OF TEACHING (U)

FEB 61 IV ZUCKERMAN, CARL B.; MARSHALL, GEORGE

R. I

CONTRACT: N61339 661

MONITOR: NTDC 661 I

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, AUTOMATION, CIRCUITS,
EFFECTIVENESS, LEARNING, TRAINING, TRAINING DEVICES. (U)
WIRING DIAGRAMS

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-262 779

NEW YORK UNIV N Y

RESPONSE MODE, PACING, AND MOTIVATIONAL EFFECTS IN
TEACHING MACHINES (U)

JUN 61 IV

SILVERMAN, ROBERT E.; ALTER, MILLICENT;

CONTRACT: N61339 507

MONITOR: NTDC 507 3

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, EFFECTIVENESS,
LEARNING, NAVAL PERSONNEL, PERSONNEL, PROGRAMMING
(COMPUTERS), TEST METHODS, TEST REACTORS, TESTS, THEORY,
TRAINING DEVICES (U)

THREE EXPERIMENTS WERE PERFORMED TO STUDY THE
EFFECTS OF RESPONSE MODE; ONE EXPERIMENT WAS DONE TO
STUDY PACING AND ONE EXPERIMENT DEALT WITH THE
MOTIVATIONAL EFFECTS OF TEACHING MACHINES. THE
FIRST THREE EXPERIMENTS INDICATED THAT REQUIRING THE
STUDENT TO MAKE AN OVERT RESPONSE DOES NOT
FACILITATE PROGRAMMED LEARNING, NOR IS THE
CONSTRUCTING OF A RESPONSE, WHETHER IT BE OVERT OR
COVERT, NECESSARILY ADVANTAGEOUS. THE FOURTH
EXPERIMENT INDICATED THAT PACING WILL NOT IMPAIR
PERFORMANCE IF CARE IS TAKEN TO INSURE OPTIMAL
PACING RATES. THE FIFTH EXPERIMENT GAVE NO
EVIDENCE OF MOTIVATIONAL EFFECTS IN TEACHING
MACHINES; PROGRAMMED TEXTBOOKS WERE AS EFFECTIVE AS
TEACHING MACHINES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-262 972

SYSTEM RESEARCH LTD RESEARCH LABS RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS
WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA
FOR ADAPTATION (U)

APR 61 1V

CONTRACT: AF61 052 402

UNCLASSIFIED REPORT

DESCRIPTORS: *TEACHING MACHINES, ANALYSIS, DESIGN,
DYNAMICS, LEARNING, THEORY, TRAINING DEVICES.
VOCABULARY (U)

IDENTIFICATION BETWEEN LEARNING AND TEACHING
PROCESSES AND A SELF ORGANISING SYSTEM, GROUP
INTERACTION WITH A TUTORIAL AND STABILISING SYSTEM,
AND DESCRIPTION OF THE MACHINE, TECHNICAL
SUMMARY, OUTLINE DESCRIPTION OF A SIMPLE
ADAPTIVE DEVICE, A SEMANTIC ORDERING MACHINE,
HYPOTHESES REGARDING THE STRUCTURE OF THE LEARNING
PROCESS, POSSIBLE HYPOTHESES, CRITICAL COMMENTS
AND NOMENCLATURE. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-263 439

PITTSBURGH UNIV PA

TRAINING RESEARCH AND EDUCATION

IV

GLASER, ROBERT;

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: •EDUCATION, •RESEARCH PROGRAM
ADMINISTRATION, •TRAINING, INSTRUCTORS, REACTION
(PSYCHOLOGY), TEACHING MACHINES, THEORY, TRAINING
DEVICES

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-264 230

AIR FORCE CAMBRIDGE RESEARCH LABS L G HANSCOM FIELD
MASS

ON THE DESIGN OF A SIMPLE CONDITIONED-RESPONSE
MACHINE

(U)

APR 61 1v MCINTOSH, J.O.:

REPT. NO. 188

MONITOR: AFCRL 188

UNCLASSIFIED REPORT

DESCRIPTORS: *ANALOG COMPUTERS, *LEARNING, COMPUTERS,
CONDITIONED REFLEX, CYBERNETICS, DEPTH INDICATORS,
INSTRUMENTATION, MOTOR REACTIONS

(U)

LEARNING BY CONDITIONING AS IT OCCURS IN LIVING
ORGANISMS IS EXAMINED TO DETERMINE WHICH ASPECTS OF
CLASSICAL CONDITIONING CAN BE INSTRUMENTED IN AN
ELECTRONIC ANALOG. ELECTRONIC TECHNIQUES FOR THIS
INSTRUMENTATION ARE DISCUSSED. A SPECIALPURPOSE
CONDITIONED-REFLEX ANALOG AND AN EXPERIMENT FOR IT
ARE DESCRIBED. POSSIBLE APPLICATIONS OF
CONDITIONED REFLEX IN DATA-PROCESSING ARE CONSIDERED.
(AUTHOR)

(U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-264 377

ILLINOIS UNIV URBANA

EFFECTS OF PROGRAMMED PERCEPTUAL TRAINING ON THE
LEARNING OF CONTACT LANDING SKILLS (U)

APR 61 IV ADAMS, JACK A.; HUFFORD, LYLE E.;

CONTRACT: N61339 297

MONITOR: NTDC 297 3

UNCLASSIFIED REPORT

DESCRIPTORS: *FLIGHT SIMULATORS, *PERCEPTION,
*PROGRAMMING (COMPUTERS), *TRAINING DEVICES, DISPLAY
SYSTEMS, LANDINGS, LEARNING, PILOTS, TRAINING (U)

THIS PROJECT CONSISTED OF AN EXPERIMENT ON THE
EFFECT OF ONE TYPE OF PERCEPTUAL (OPEN-LOOP)
TRAINING ON THE LEARNING OF CONTACT LANDING. THIRTY
NON-PILOTS, DIVIDED EQUALLY INTO TWO MATCHED GROUPS,
PARTICIPATED. THE EXPERIMENTAL GROUP RECEIVED
PERCEPTUAL TRAINING WITH A PROGRAMMED VISUAL DISPLAY;
THE CONTROL GROUP DID NOT RECEIVE THIS TRAINING.
AS CRITERION TRIALS, BOTH GROUPS PERFORMED CONTACT
LANDINGS IN AN OPERATIONAL FLIGHT TRAINER EQUIPPED
WITH A NONPROGRAMMED VISUAL ATTACHMENT. THE
RESULTS INDICATED THAT THE PROGRAMMED PRESENTATION
EVALUATED DID NOT CONTRIBUTE TO THE LEARNING OF
CONTACT LANDINGS. THE IMPLICATIONS OF THE
FINDINGS, AND RESEARCH ISSUES IN THE EVALUATION OF
VISUAL ATTACHMENTS AND OF PILOT PERFORMANCE ARE
DISCUSSED. (AUTHOR: (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-265 070

AMERICAN INST FOR RESEARCH SANTA BARBARA CALIF
A STUDY OF SUBJECT-CONTROLLED PARTIAL CUEING IN
PAIRED-ASSOCIATE LEARNING

(U)

SEP 61 1v ANGELL, DAVID; LUMSDAINE, ARTHUR A.

REPT. NO. C14 9 61 SR4

CONTRACT: AF49 638 681

MONITOR: AFOSR 1342

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TRAINING DEVICES, AUTOMATIC,
EFFECTIVENESS, TEACHING MACHINES (U)

A STUDY WAS PERFORMED TO DETERMINE WHAT EFFECT, IF ANY, A TRAINING PROCEDURE WHICH UTILIZED PARTIAL CUEING AT THE OPTION OF THE LEARNER WOULD HAVE UPON THE LEARNING OF PAIRED-ASSOCIATE MATERIALS. THE TECHNIQUE WAS A SIMPLE ONE WHICH PROVIDED PARTIAL CUEING BY SUCCESSIVE REVELATION, UPON STUDENT DEMAND, OF THE LETTERS OF THE 3-LETTER RESPONSE TERM IN AN S-R PAIR. NO INSTRUMENTATION WAS EMPLOYED; E SERVED AS THE DE-VICE BY WHICH RESPONSE COMPONENTS WERE REVEALED (AURALLY) TO THE STUDENT. THE DATA SHOWED LITTLE DIFFERENCE IN OVER-ALL EFFECTIVENESS BETWEEN THE PARTIAL-CUEING TECHNIQUE AND A STANDARD ANTICIPATION PROCEDURE FOR LEARNING PAIRED ASSOCIATES. WHEN THE EFFECTIVENESS OF THE TWO TRAINING PROCEDURES WAS EXAMINED WITH RESPECT TO 'TASK DIFFICULTY'--ITEMS HAVING BEEN DICHOTOMIZED INTO DIFFICULT AND EASY, AND SS HAVING BEEN BEEN DICHOTOMIZED INTO SLOW LEARNERS AND FAST LEARNERS--THE PARTIAL-CUEING PROCEDURE WAS FOUND TO BE SOMEWHAT MORE EFFECTIVE FOR SLOW LEARNERS WITH HARD ITEMS, AND SLIGHTLY LESS EFFECTIVE FOR ST LEARNERS WITH EASY ITEMS. THIS INTERACTION WAS ORIGINALLY SIGNIFICANT ($P < .10$). THE FINDINGS CUSSED IN RELATION TO OTHER STUDIES OF PARTIAL CUEING IN PAIRED-ASSOCIATE LEARNING. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-268 223

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

A SURVEY OF AUTO-INSTRUCTION DEVICES (U)
SEP 61 IV KOPSTEIN, FELIX F.; SHILLESTAD, ISABEL

J.:

MONITOR: ASD TR61 414

UNCLASSIFIED REPORT

DESCRIPTORS: •TEACHING MACHINES, AUTOMATIC, EDUCATION,
HANGARS, TRAINING, TRAINING DEVICES (U)

THE STATE OF THE ART OF AUTO-INSTRUCTION AND
TEACHING DEVICES AND CATALOGS INSTRUCTIONAL DEVICES
TO APRIL 1961 IS SUMMRIZED IN THE INTEREST OF
SUGGESTING POSSIBLE APPLICATIONS TO LOCAL TRAINING OR
EDUCATION PROBLEMS. THE FIRST SECTION BRIEFLY
REVIEWS WHAT AUTO-INSTRUCTION IS, WHETHER IT IS AN
ENTIRELY NEW CONCEPT, ITS PRACTICAL BENEFITS, AUTO-
INSTRUCTION TERMINOLOGY, PROGRAMS AND DEVICES, CURRENT
PROGRAMMING FORMATS, EVALUATING A PROGRAM, AND
DISCUSSES PROSPECTS FOR THE FUTURE OF
AUTOINSTRUCTION. THE SECOND SECTION CATALOGS AND
DESCRIBES ALL MAJOR CURRENT AUTO-INSTRUCTIONAL
DEVICES: SKINNER MACHINES, PRESSEY MACHINES,
CROWDER TECHNIQUE, SELF-ORGANIZING SYSTEMS, AUDIO-
VISUAL MACHINES, DIGITAL COMPUTERS AS TEACHING
MACHINES, AND MISCELLANEOUS DEVICES. A LIST OF
TEACHING MACHINE PATENTS IS APPENDED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-276 703

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL
FOR SENSORY PATTERN RECOGNITION, CONCEPT FORMATION,
AND SYMBOL TRANSFORMATION (U)
MAR 62 IV VOSSLER, CHARLES; UHR, LEONARD;
REPT. NO. SP 562

UNCLASSIFIED REPORT

DESCRIPTORS: •COMPUTERS, •LEARNING, •SIMULATION,
LANGUAGE, TRANSLATIONS, VISION (U)

COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL FOR
SENSORY PATTERN RECOGNITION, CONCEPT FORMATION, AND
SYMBOL TRANSFORMATION.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-277 287

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

MOTIVATION AND THE AUTOMATION OF TRAINING. A
LITERATURE REVIEW

(U)

MAR 62

1V

UGELow, ALVIN;

REPT. NO. TDR62 15

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TEACHING MACHINES, AUTOMATION,
BIBLIOGRAPHIES, EFFECTIVENESS, GROUP DYNAMICS,
MOTIVATION, PSYCHOLOGY

(U)

CONTROLLING THE MOTIVATION OF LEARNER IN THEIR
CONTINUING USE OF THE NEW AUTO-INSTRUCTIONAL DEVICES
COULD BECOME A SERIOUS PROBLEM, SINCE NEITHER THE
DEVICES THEMSELVES NOR THE PERFORMANCE KNOWLEDGE THEY
PROVIDE SEEMS SUFFICIENT TO MAINTAIN EXTENDED
PARTICIPATION IN THE INSTRUCTION. A SELECTIVE
REVIEW OF THE LITERATURE ON KNOWLEDGE OF RESULTS,
PRAISE AND REPROOF, COMPETITION, TASK INTERRUPTION,
AND READABILITY SUGGESTS TECHNIQUES FOR BETTER
CONTROLLING SUCH PARTICIPATION. POTENTIALLY USEFUL
APPLICATIONS ARE DISCUSSED, AND LIMITED TRY-OUT OF
VARIATIONS, BOTH WITHIN THE PROGRAM AND INSTRUCTIONAL
ENVIRONMENT, IS ENCOURAGED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-277 493

MELPAR INC FALLS CHURCH VA

A STUDY OF GENERALIZED MACHINE LEARNING (U)

APR 62 IV CARNE, E.B.;

REPT. NO. TDR62 166

CONTRACT: AF33 616 76822

MONITOR: ASD TDR62 166

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, *DIGITAL SYSTEMS,
CODING, COMMUNICATION THEORY, ELECTRICAL NETWORKS,
FEEDBACK, GAME THEORY, LEARNING, MATHEMATICAL
PREDICTION, NERVES, RELIABILITY, SEQUENCES, SEQUENTIAL
ANALYSIS, SIMULATION, SWITCHING CIRCUITS, TRIGGER
CIRCUITS (U)

MACHINE LEARNING WITH THE ARTRON NETWORKS AND THE
SELF-ORGANIZING BINARY LOGICAL NETWORK, FEASIBILITY OF
CONSTRUCTION OF MACHINES WHICH LEARN EFFICIENTLY.
LEARNING ABILITY OF SOB LN TO FORM ANY BOOLEAN FUNCTION OF N
VARIABLES.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-281 936

NATIONAL ACADEMY OF SCIENCES - NATIONAL RESEARCH COUNCIL
WASHINGTON D C

STUDENT RESPONSE IN PROGRAMMED INSTRUCTION, A
SYMPOSIUM ON EXPERIMENTAL STUDIES OF CUE AND RESPONSE
FACTORS IN GROUP AND INDIVIDUAL LEARNING FROM
INSTRUCTIONAL MEDIA, (U)

61 555P LUMSDAINE, A. A. ;

REPT. NO. 943

UNCLASSIFIED REPORT

DESCRIPTORS: •LEARNING, •REACTION (PSYCHOLOGY),
•TEACHING MACHINES, •TRAINING, FILMS, PROGRAMMING
(COMPUTERS), SYMPOSIA, VERBAL BEHAVIOR (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-282 679

AERONAUTICAL SYSTEMS DIV WRIGHT-PATTERSON AFB OHIO
INVESTIGATIONS IN COMPUTER-AIDED DESIGN FOR
NUMERICALLY CONTROLLED PRODUCTION (U)

MAY 62 IV ROSS, D.T.; COONS, S.A.;

REPT. NO. TR7 8201R 138

CONTRACT: AF33 600 42859

MONITOR: ASD TR7 820

UNCLASSIFIED REPORT

DESCRIPTORS: *AUTOMATIC, *DATA PROCESSING SYSTEMS,
*MACHINE TOOLS, *PROGRAMMING (COMPUTERS), ANALYSIS,
COMPUTERS, DESIGN, DISPLAY SYSTEMS, INSTRUMENTATION,
INTEGRATION, MECHANICAL ENGINEERING, NUMERICAL ANALYSIS,
OPERATORS (MATHEMATICS), OSCILLOSCOPES, STRESSES (U)

THE COMPUTER-AIDED DESIGN PROJECT IS ENGAGED IN A PROGRAM OF RESEARCH INTO THE APPLICATION OF THE CONCEPTS AND TECHNIQUES OF MODERN DATA PROCESSING TO THE DESIGN OF MECHANICAL PARTS, AND THE FURTHER DEVELOPMENT OF AUTOMATIC PROGRAMMING (APT) SYSTEMS FOR NUMERICALLY CONTROLLED MACHINE TOOLS. THIS COMBINED INTERIM REPORT COVERS THE FIFTEENTH THROUGH TWENTY-SIXTH MONTHS OF THE PROJECT. TOPICS COVERED INCLUDE: A DESCRIPTION OF CURRENT STATUS ON THE BASIC BOOTSTRAP COMPILER, THE AVAILABLE PROGRAMS OF THE BOOTSTRAP PLATEAU SYSTEM, AND THE MULTI-PASS COMPILER; DISCUSSION OF A NEW FIRST-PASS ALGORITHM WHICH IS BELIEVED TO HAVE WIDE APPLICABILITY TO ALL FORMS OF PROBLEM STATEMENT; DESCRIPTIONS OF THREE MANUAL INTERVENTION CONSOLE DESIGNS--A RUDIMENTARY VERSION NOW OPERATING ON THE 709 COMPUTER, A PROPOSED VERSION FOR THE 709, AND A STUDY OF A REMOTE CONSOLE FOR A LARGE-SCALE CENTRAL COMPUTER; COMPUTER STUDIES IN THREE-DIMENSIONAL SHAPE DESCRIPTION AND STRESS ANALYSIS; AND PLANS FOR PILOT STUDIES IN PIN-JOINTED TRUSSES AND SCULPTURED PARTS. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0MK08

AD-283 359

EDUCATIONAL TESTING SERVICE PRINCETON N J
SOME IMPLICATIONS OF TESTING PROCEDURES FOR AUTO-
INSTRUCTIONAL PROGRAMMING (U)

DESCRIPTIVE NOTE: FINAL REPT, JAN-DEC 61,
JUN 62 74P JACOBS, PAUL I. I

CONTRACT: AF33 616 7795

MONITOR: MRL TOR-62-67

UNCLASSIFIED REPORT

DESCRIPTORS: •LEARNING, •PROGRAMMING (COMPUTERS),
•TEACHING MACHINES, ACHIEVEMENT TESTS, APTITUDE TESTS,
EFFECTIVENESS, TEST CONSTRUCTION (PSYCHOLOGY), TEST
METHODS, TESTS, THEORY (U)

A SYSTEMATIC COMPARISON OF PROBLEMS AND PROCEDURES
REVEALS IMPORTANT IMPLICATIONS FOR PROGRAMMING FROM
THE OLDER FIELD OF TESTING. THEORY AND EXPERIENCE
IN TEST CONSTRUCTION CAN BE ESPECIALLY USEFUL IN THE
SELECTION OF VALID CRITERIA FOR ASSESSING THE
EFFECTIVENESS OF A PROGRAM, THE ORDERING OF
INSTRUCTIONAL SUBJECT MATTER, THE WRITING OF
INSTRUCTIONAL FRAMES, AND THE FORMAL EVALUATION OF
THE PROGRAM. ADAPTIVE PROGRAMMING IMPLIES
MEASUREMENT OF BOTH APTITUDE AND ACHIEVEMENT IN ORDER
TO ASSIGN TRAINEES TO APPROPRIATE INDIVIDUAL
SEQUENCES OF INSTRUCTION. POSSIBLE APPLICATIONS
RESULTING FROM EXAMINATION OF THESE AND OTHER ISSUES
ARE EXPLORED, AND NECESSARY FURTHER RESEARCH IS
SUGGESTED. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-284 821

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE USE OF SELF-INSTRUCTIONAL DEVICES IN
COUNSELING

(U)

AUG 62 1v
REPT. NO. SP 940

COGSWELL, JOHN F., ISORENSEN, A. GARTH;

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES

(U)

ADVANTAGES OF THE USE OF SELF-INSTRUCTIONAL DEVICES
IN COUNSELING ARE DISCUSSED. THE USE OF SELF-
INSTRUCTIONAL DEVICES AND PROGRAMS TO HELP IN THE
INTERPRETING OF TESTS TO STUDENTS IS SUGGESTED AND
ILLUSTRATED. THE TECHNIQUE OF CONSTRUCTED SELF-
INSTRUCTIONAL MATERIALS AS A MEANS FOR DEVELOPING
MORE EFFECTIVE COMMUNICATION AND AS A MEANS FOR
STUDYING THE PROBLEMS OF THE COMMUNICATIONS PROCESS
IS DISCUSSED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 324

AMERICAN INST FOR RESEARCH SANTA BARBARA CALIF
RETENTION OF MATERIAL PRESENTED BY AUTOINSTRUCTIONAL
PROGRAMS WHICH VANISH AND WHICH DO NOT VANISH VERBAL
CUES (U)

AUG 62 IV ANGELL, DAVID; LUMSDAINE, ARTHUR A.;
CONTRACT: AF49 638 681

UNCLASSIFIED REPORT

DESCRIPTORS: *LEARNING, *TEACHING MACHINES (U)

RETENTION OF MATERIAL PRESENTED BY AUTOINSTRUCTIONAL
PROGRAMS WHICH VANISH AND WHICH DO NOT VANISH VERBAL
CUES.

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 534

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATION OF RESEARCH ON PROGRAMED INSTRUCTION TO
SCHOOL SYSTEMS (U)

AUG 62 IV SILBERMAN, HARRY F. I
REPT. NO. SP 949

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, AUTOMATION,
COMMUNICATION SYSTEMS, DATA TRANSMISSION SYSTEMS (U)

THE ARGUMENT IS PRESENTED THAT A BETTER IMPEDANCE
MATCH BETWEEN LABORATORY AND SCHOOL WOULD BE MADE IF
ONE TOOK A WIDER VIEW OF THE MEDIA THROUGH WHICH
PROGRAMING PRINCIPLES ARE IMPLEMENTED. RESEARCH
REPORTS SHOULD ALLOW THE EDUCATIONAL DECISION-MAKER
TO TAKE ACTION ON THE BASIS OF THESE REPORTS. CLASS
(COMPUTER-BASED LABORATORY FOR AUTOMATED
SCHOOL SYSTEMS), AN EXPERIMENTAL FACILITY
DEVELOPED AT SDC AS AN APPROACH TO DESIGNING A
SEQUENCE OF STEPS LEADING FROM RESEARCH ON PROGRAMING
TO ITS PRACTICAL APPLICATION IN SCHOOLS, IS
DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-285 535

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
INFORMATION RETRIEVAL SYSTEMS AND EDUCATION

(U)

AUG 62 IV BUSHNELL, DON; BONKO, HAROLD;
REPT. NO. SP 947

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *INFORMATION RETRIEVAL,
*TEACHING MACHINES, AUTOMATION, DATA TRANSMISSION
SYSTEMS

(U)

AN INFORMATION RETRIEVAL (IR) SYSTEM THAT WOULD ADEQUATELY SERVE THE INFORMATION NEEDS OF THE EDUCATOR AND STUDENT IS DISCUSSED. SUCH A SYSTEM WOULD INCLUDE FUNCTIONS ALREADY AUTOMATED IN PRESENT IR HARDWARE SYSTEMS AND, IN ADDITION, THE AUTOMATION OF ACQUISITION, CLASSIFICATION, AND DISSEMINATION FUNCTIONS. EXTRAPOLATION FROM THE RESEARCH IN THE LAST THREE AREAS LEADS TO A DESCRIPTION OF AN ADVANCED SCHOOL SYSTEM OF THE 1970'S IN WHICH UNIVERSITIES OR SECONDARY SCHOOLS WILL BE LINKED BY DATA TRANSMISSION LINES TO REGIONAL INFORMATION CENTERS. THESE CENTERS WILL ACQUIRE, TRANSLATE, AND SELECT ITEMS OF INFORMATION FOR AUTOMATIC INDEXING, ABSTRACTING, AND CODING INTO MAGNETIC TAPE FILES AND FOR SUBSEQUENT FEEDING TO REMOTE SCHOOL SYSTEMS. ALL ELEMENTS IN THE EDUCATIONAL SYSTEM WILL BE SERVICED BY THE INTEGRATED INFORMATION RETRIEVAL SYSTEMS WHICH WILL ORGANIZE AND DISSEMINATE THE INFORMATION ACCORDING TO INDIVIDUAL NEEDS. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-285 650

RAND CORP SANTA MONICA CALIF

LEARNING, GENERALITY AND PROBLEM SOLVING

IV NEWELL, ALLEN I

(U)

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER LOGIC, *LEARNING, ARTIFICIAL
INTELLIGENCE, COMPUTERS, GAME THEORY, PATTERN
RECOGNITION

(U)

LEARNING, GENERALITY, AND PROBLEM SOLVING IN
ARTIFICIAL INTELLIGENCE MECHANISMS, ABILITY TO
GENERALIZE AS A GOAL IN THE DESIGN OF ARTIFICIAL
LEARNING MECHANISMS, GENERAL PROBLEM SOLVER, A COMPUTER
PROGRAM OF THE GAME-PLAYING AND THEOREMPROVING
CLASS.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 880

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL
FOR SENSORY PATTERN RECOGNITION, CONCEPT FORMATION,
AND SYMBOL TRANSFORMATION

(U)

AUG 62 1V VOSSLER, CHARLES; UHR, LEONARD;
REPT. NO. SP 562 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER LOGIC, *LEARNING, *PERCEPTION,
AUTOMATION, COMPUTERS, DECISION MAKING, MACHINE
TRANSLATION, NERVES, PATTERN RECOGNITION

(U)

COMPUTER SIMULATIONS OF A PERCEPTUAL LEARNING MODEL FOR
SENSORY PATTERN RECOGNITION, CONCEPT FORMATION, AND
SYMBOL TRANSFORMATION. A NEURON NET MODEL FOR DISCOVERY,
GENERALIZATION, AND TRANSFORMATION OF PATTERNED
INFORMATION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-285 882

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

SIMULATION: A VEHICLE FOR FACILITATING INNOVATION AND
SYSTEM DESIGN IN EDUCATION (U)

SEP 62 IV EGBERT, ROBERT L.;

REPT. NO. SP 890

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, SIMULATION, TEACHING MACHINE (U)

APPLICATION OF SIMULATION TO EDUCATION, SIMULATION OF AN
ELEMENTARY SCHOOL, A MODEL FOR THE STUDY OF NEW
ORGANIZATIONAL DESIGNS, POSSIBLE REASONS FOR LACK OF
ACCEPTANCE OF NEW KNOWLEDGE AND TECHNOLOGY,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-286 729

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

FLES--A NEW APPROACH

(U)

SEP 62

1V

NEWMARK, GERALD;

REPT. NO. SP 971

UNCLASSIFIED REPORT

DESCRIPTORS: •EDUCATION, •LANGUAGE, •TEACHING MACHINES,
EFFECTIVENESS, HEARING, TRAINING (U)

A LISTENING COMPREHENSION APPROACH IS PROPOSED FOR
TEACHING FOREIGN LANGUAGES IN ELEMENTARY SCHOOLS
(FLES), ESPECIALLY WHERE QUALIFIED LANGUAGE
INSTRUCTORS ARE NOT AVAILABLE. PROGRAMMED
MATERIALS FOR LISTENING COMPREHENSION IN FRENCH
ARE DESCRIBED. THE ORGANIZATION OF INTERSTATE
COMMITTEES OR A NATIONAL COMMITTEE OF EXPERTS TO
AVOID DUPLICATION IN THE PRODUCTION OF FLES
MATERIAL IS RECOMMENDED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-287 791

WASHINGTON UNIV SEATTLE

MAN-COMPUTER INTERFACE STUDY

(U)

JUN 62 1v JOHNSON, D.L.; KOBLE, A.L.;

CONTRACT: AF49 638 1070

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, APPLIED PSYCHOLOGY,
ATTITUDES, HUMAN ENGINEERING, LEARNING, MAN, PERSONAL (U)

AN INVESTIGATION AND ANALYSIS WERE MADE OF THOSE
FACTORS FIXING THE INTERFACE EXISTANT IN MANCOMPUTER
SYSTEMS. EMPHASIS WAS PLACED UPON THREE SPECIFIC
AREAS: (1) HUMAN ATTITUDES, TOWARD COMPUTER USE
AND RESULTS, (2) MACHINE LEARNING PROCESSES, AND
(3) MEMORY ORGANIZATION FOR MEANING ASSOCIATION
AND RETRIEVAL. ALL THREE OF THESE AREAS WERE
EXAMINED IN RESPECT TO THEIR POTENTIAL IN MOVING OR
FIXING THE MANMACHINE INTERFACE FOR VARIOUS TYPES OF
PROBLEMS. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-288 836

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

INFORMATION RETRIEVAL SYSTEMS AND EDUCATION

(U)

SEP 62

IV

BUSHNELL, DON; BORKO, HAROLD;

REPT. NO. SP 947 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: •EDUCATION, •INFORMATION RETRIEVAL,
•LIBRARIES, CODING, COMPUTERS, DATA PROCESSING SYSTEMS,
DOCUMENTATION, LITERATURE, SUCCINIMIDES, TEACHING
MACHINES

(U)

A SURVEY CONDUCTED TO DETERMINE THE SUITABILITY OF
GENERAL-PURPOSE INFORMATION RETRIEVAL SYSTEMS TO
SCHOOL SYSTEMS.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-288 837

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROGRAMMED DECISIONS IN PROGRAMMED INSTRUCTION

(U)

AUG 62 IV COULSON, JOHN E.;

REPT. NO. SP 933 001 00

UNCLASSIFIED REPORT

DESCRIPTORS: . *AUTOMATION, *EDUCATION, *TEACHING
MACHINES, DATA PROCESSING SYSTEMS, DIGITAL COMPUTERS,
HUMAN ENGINEERING, LEARNING, PROGRAMMING (COMPUTERS),
STUDENTS (U)

FLEXIBLE SEQUENCES KNOWN AS BRANCHING PROGRAMS ARE USED TO
ADAPT TEACHING MATERIALS TO INDIVIDUAL STUDENTS.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-289 817

MITRE CORP BEDFORD MASS

PROGRAMMED INSTRUCTION, A SELECTED BIBLIOGRAPHY (U)

1V

MORRILL, CHARLES S. HALPERT, DOROTHEA

T. PILSUCKI, SYLVIA H.;

REPT, NO. TOR62 225

CONTRACT: AF33 600 39852

MONITOR: ESD TOR62 225

UNCLASSIFIED REPORT

DESCRIPTORS: •BIBLIOGRAPHIES, •TEACHING MACHINES,
•TRAINING, EDUCATION, LEARNING

(U)

THIS BIBLIOGRAPHY IS INTENDED TO PROVIDE THE
READER WITH AN EXTENSIVE LIST OF PUBLICATIONS
CONCERNED WITH PROGRAMMED INSTRUCTION. AVAILABLE
PROGRAMS FOR INSTRUCTION ARE NOT LISTED HERE.
HOWEVER, THE APRIL 1962 ISSUE OF PROGRAMED
INSTRUCTION, THE BIMONTHLY BULLETIN OF THE
CENTER FOR PROGRAMED INSTRUCTION, STATES THAT
THE CENTER HAS PREPARED A PAMPHLET ENTITLED
PROGRAMS '62: A GUIDE TO PROGRAMED
INSTRUCTIONAL MATERIAL AVAILABLE TO EDUCATORS
BY SEPTEMBER, 1962. (AUTHOR)

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-298 073

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS IN PROGRAMED INSTRUCTION AND EDUCATIONAL
DATA PROCESSING

(U)

JAN 63 24p

COULSON, JOHN E. I

REPT. NO. SP 950

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, AUTOMATION,
EFFECTIVENESS, GROUP DYNAMICS, JOB ANALYSIS, PROGRAMMING
(COMPUTERS), REACTION (PSYCHOLOGY), TELEVISION DISPLAY
SYSTEMS

(U)

AUTOMATED TEACHING PROGRAM TECHNIQUES AND AUTOMATED
FEEDBACK TO THE STUDENT CONCERNING HIS RESPONSES.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-298 711

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE APPLICATION OF PROGRAMMED INSTRUCTION AND AUTO-
INSTRUCTIONAL DEVICES IN COLLEGES AND THEIR RELATION
TO A THEORY OF INSTRUCTION (U)

FEB 63 IV RYANS, DAVID G. I
REPT. NO. SP 1084 000 01

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, *TEACHING MACHINES, ATTITUDES,
AUTOMATION, BEHAVIOR, INSTRUCTORS, LEARNING, PROGRAMMING
(COMPUTERS), RESEARCH PROGRAM ADMINISTRATION, THEORY,
TRAINING (U)

A STUDY OF THE THEORY OF INSTRUCTION BASED ON THE
APPLICATION OF PROGRAMMED INSTRUCTION AND AUTO-
INSTRUCTIONAL DEVICES IN COLLEGES.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-298 949

RAND CORP SANTA MONICA CALIF

LEARNING, GENERALITY AND PROBLEM-SOLVING

(U)

IV NEWELL, ALLEN;

UNCLASSIFIED REPORT

DESCRIPTORS: *ARTIFICIAL INTELLIGENCE, *LEARNING,
MEMORY, OPERATORS (MATHEMATICS), PATTERN RECOGNITION,
PROGRAMMING (COMPUTERS) (U)

LEARNING, GENERALITY, AND PROBLEM-SOLVING. THE
CONCEPT OF LEARNING IN ARTIFICIAL INTELLIGENCE AND
ITS RELATIONSHIP TO GENERALITY AND PROBLEM SOLVING.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-401 454

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

SYSTEM DESIGN IN THE BASSETT HIGH SCHOOL.

(U)

APR 63

22P

EGBERT, ROBERT L.; COGSWELL,

JOHN F. :

REPT. NO. TM1147

UNCLASSIFIED REPORT

DESCRIPTORS: *EDUCATION, DESIGN, LANGUAGE, LEARNING,
MODELS (SIMULATIONS), OPERATIONS RESEARCH, STUDENTS,
TEACHING MACHINES

(U)

THE NEW BASSETT HIGH SCHOOL, USING THE CONTINUOUS PROGRESS
PLAN WHICH UTILIZES SMALL-GROUP INSTRUCTION AND BOTH
PROGRAMMED AND TRADITIONAL LEARNING MATERIALS.
INDIVIDUAL STUDY AND PROGRESS.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-402 646

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE EFFECTS OF ELECTRONIC DATA PROCESSING IN FUTURE
INSTRUCTIONAL SYSTEMS. (U)

IV

REPT. NO. SP.
CONTRACT: REPT. NO. SP1118/001/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNCLASSIFIED REPORT

DESCRIPTORS: *DATA PROCESSING SYSTEMS, LEARNING,
MANAGEMENT ENGINEERING, SIMULATION, COMPUTERS,
SYMPOSIA, INFORMATION RETRIEVAL, TEACHING
MACHINES. (U)

SUMMARIZES COMPUTER DEVELOPMENTS AS FOLLOWS: THE
COMPUSED TEACHING MACHINE: BY BRANCH ING STUDENTS
LATERALLY, BACKWARD, AND FORWARD THROUGH SUBJECT
MATERIAL, THE MACHINES DEVELOPS A COURSE OF STUDY
PARTICULARLY SUITED TO THE INDIVIDUAL STUDENT'S
EDUCATIONAL BACKGROUND, LEVEL OF MOTIVATION, AND
APTITUDE. INFORMATION RETRIEVAL SYSTEMS: UP-TO-
DATE INFORMATION IN ANY AREA OF THE ARTS AND SCIENCES
CAN BE PROVIDED BY INFORMATION CENTERS UTILIZING
ABSTRACTING AND TRANSLATING MACHINES, TECHNIQUES OF
RAPID RETRIEVAL AND DISSEMINATION OF DATA,
SIMULATION PROGRAMS: COMPUTER-BASED SIMULATION
PROGRAMS WILL AID ONGOING MANAGEMENT AND INSTRUCTION
ACTIVITIES BY: SUPPLYING PERIODIC ECONOMIC OR POP
ULATION FORECASTS; HELPING TO BALANCE BUDGETS;
GIVING GUIDANCE IN THE PLANNING OF NEW EDUCATIONAL
FACILITIES; EXPEDITING THE TRAINING AND SELECTION OF
EDUCATORS; FACILITATING CLASSROOM AND VOCATIONAL
INSTRUCTION. THE AUTOMATED CLASSROOM: NEW
TECHNOLOGY FOR PROCESSING EDUCATIONAL DATA AND FOR
ORGANIZING INSTRUCTIONAL MATERIAL IN THE CLASSROOM. (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-404 086

MITRE CORP BEDFORD MASS

PROGRAMMED INSTRUCTION. A SELECTED BIBLIOGRAPHY,

(U)

APR 63 111P

MORRILL, C.S.; HALPERT, D.T.;

PILSUCK, S.H.;

REPT. NO. SR69 1

CONTRACT: AF33 600 39852

PROJ: 702

MONITOR: ESD TDR62 225

UNCLASSIFIED REPORT

DESCRIPTORS: •EDUCATION, •PROGRAMMING COM PUTERS,
•BIBLIOGRAPHIES, AUTOMATION, TRAINING DEVICES,
DOCUMENTATION, TEACHING MACHINES, READING,
INSTRUCTORS.

(U)

BIBLIOGRAPHY OF REFERENCES ON PROGRAMMED INSTRUCTION.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-407 743

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A STUDY OF PSYCHO-EDUCATIONAL APPRAISAL BY DIGITAL
COMPUTER, (U)

APR 63 5P COGSWELL, JOHN F.;

REPT. NO. TM1187

UNCLASSIFIED REPORT

DESCRIPTORS: (•PROGRAMMING (COMPUTERS), PSY
CHOMETRICS), (•EDUCATION, APTITUDE TESTS),
(•DECISION MAKING, MODELS (SIMULATIONS),
TRAINING. (U)

IDENTIFIERS: 1963, GUIDANCE COUNSELING. (U)

PROPOSES TO DEVELOP A DEMONSTRABLE AND WIDELY
APPLICABLE MEANS OF IMPROVING THE GUIDANCE PROC ESS
BY: (1) DEVELOPING A COMPUTER PROGRAM TO PERFORM
THE TASK OF PSYCHO-EDUCATIONAL APPRAISAL; (2)
EXPLICATING AND STUDYING THE DECISION-MAKING BEHAVIOR
OF COUNSELORS IN PSYCHO-EDUCATIONAL APPRAISAL;
(3) IMPROVING THE VALIDITY OF PSYCHO EDUCATIONAL
APPRAISAL IN COUNSELING. REPORTS THAT A NEW
METHODOLOGY FOR AUTOMATING, STUDYING, AND IMPROVING
THE APPRAISAL PROCESS HAS RECENTLY BEEN DEMONSTRATED
(KLEINMUNTZ 1963). CONCLUDES THAT THE
KLEINMUNTZ STUDY DEMONSTRATES THE VALUE OF HIS
METHOD FOR STUDYING THE DECISION-MAKING BEHAVIOR OF
DIAGNOSTICIANS AND IMPROVING THE VALIDITY OF THE
DIAGNOSTIC TASK. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-414 776

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN INFORMATION-SYSTEM APPROACH TO THEORY OF
INSTRUCTION WITH SPECIAL REFERENCE TO THE TEACHER, (U)
MAR 63 65P RYANS, DAVID G. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMMUNICATION THEORY, INSTRUCTORS),
(*INSTRUCTORS, BEHAVIOR), INFORMATION RETRIEVAL,
LEARNING

(U)

IDENTIFIERS: 1963

(U)

THIS IS AN ATTEMPT AT CONCEPTUALIZATION OF THEORY BUILDINGS WITH RESPECT TO THE INSTRUCTIONAL PROCESS. THE PURPOSE IS TO BLOCK OUT SOME OF THE CONDITIONS AND BEHAVIORAL CONSTRUCTS WHICH MAY BE HYPOTHESIZED TO CONTRIBUTE TO TEACHER BEHAVIOR AND THE INSTRUCTIONAL PROCESS. IN THIS PAPER, THE WRITER'S POSITION IS PRESENTED IN DETAIL, ADDITIONAL CONSTRUCTS ARE INTRODUCED AND EMPHASIZED, AND AN EFFORT IS MADE TO LOOK FURTHER INTO SOME OF THE IMPLICATIONS. THE TEACHER SYSTEM AND THE PUPIL SYSTEM ARE DESCRIBED IN TERMS OF THE ESSENTIAL CHARACTERISTICS OF ALL SYSTEMS--INFORMATION FLOW OR INFORMATION PROCESSING. THE INFLUENCING CONDITIONS THAT HAVE LED TO THIS 'INFORMATION SYSTEM THEORY OF INSTRUCTION' ARE FOUR: (1) THE THINKING AND THE RESEARCH GROWING OUT OF A TEACHER CHARACTERISTICS STUDY, RELEVANT TEACHER BEHAVIOR RESEARCH REPORTED BY OTHER INVESTIGATIONS, AND EXPERIENCE WITH THE DATA ACCUMULATED IN CONNECTION WITH THE NATIONAL TEACHER EXAMINATIONS; (2) THE INTRODUCTION OF THE CONCEPTS OF 'GENERAL SYSTEM THEORY'; (3) SEARS' DIRECTION OF ATTENTION TO THE 'DYADIC SEQUENCE' AS AN EXPLANATION OF SOCIAL BEHAVIOR; AND (4) THE GROWING INTEREST IN CONCEPTS ASSOCIATED WITH INFORMATION THEORY AND COMMUNICATION THEORY.

(AUTHOR)

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-415 936

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES

PALO ALTO CALIF

LEARNING VIA PROGRAMED READING AND CUE VERSUS

RESPONSE IN PROGRAMED READING. (U)

IV HERSHBERGER, WAYNE J

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, READING), (*READING,
EFFECTIVENESS), TEXTBOOKS, DESIGN, EFFECTIVENESS,
STATISTICAL DATA, ANALYSIS OF VARIANCE (U)

IDENTIFIERS: PROGRAMED READING, TYPOGRAPHICAL CUEING, (U)
READING TIME, 1963 (U)

LEARNING VIA PROGRAMED READING AND CUE VERSUS RESPONSE IN
PROGRAMED READING.

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-417 376

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF

LEARNING VIA PROGRAMED READING.

(U)

JUL 63 IV HERSHBERGER, WAYNE BRIGGS,

LESLIE J.

REPT. NO. TECHNICAL REPT. NO. 5:

CONTRACT: NONR3077 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: ORIGINAL CONTAINS COLOR PLATES; ALL
DDC RE PRODUCTIONS WILL BE IN BLACK AND WHITE, ORIGINAL
MAY BE SEEN IN DDC HEADQUARTERS.

DESCRIPTORS: (+READING, BEHAVIOR), (+LEARNING,
READING); PSYCHOLOGY, PSYCHOMETRICS, TEST
CONSTRUCTION (PSYCHOLOGY), REACTION (PSYCHO
LOGY), EFFECTIVENESS, LEARNING.

(U)

IDENTIFIERS: PROGRAMED READING, TYPOGRAPHY, 1963.

(U)

THE FIRST PART OF THIS STUDY REPORTS THE FINDING
THAT DISCURSIVELY WRITTEN TEXTS PROGRAMED TO INCLUDE
(A) HETEROGENEOUS TYPOGRAPHY HIGHLIGHTING
ESSENTIAL CORE CONTENT, AND (B) SELF EVALUATIONAL
RESPONSE ITEMS QUIZZING THE READER ON THE CORE
CONTENT, WERE CONSIDERABLY MORE EFFECTIVE IN TEACHING
THE ESSENTIAL MATERIAL THAN DISCURSIVELY AND TERSELY
WRITTEN TEXTS IN CORPORATING NEITHER PROGRAM
CHARACTERISTIC. THE SECOND PART OF THE STUDY
REPORTS THE FINDINGS OF A FOLLOW-UP STUDY DESIGNED TO
ASSESS THE RELATIVE EFFECTIVENESS OF TYPOGRAPHICAL
CUEING VERSUS SELF-EVALUATIONAL RESPONDING ON THE
LEARNING AND RETENTION OF ESSENTIAL LESSON CONTENT IN
BOTH DISCURSIVELY AND TERSELY WRITTEN TEXTS. IT
WAS FOUND THAT UNDER NO CONDITIONS DID TYPOGRAPHICAL
CUEING INCREASE EITHER THE EFFICIENCY OR THE
EFFECTIVENESS OF THE TEXTS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-419 916

AIR FORCE COMMAND AND CONTROL DEVELOPMENT DIV AIR RESEARCH
AND DEVELOPMENT COMMAND BEDFORD MASS
USE OF A TEACHING MACHINE FOR AIR FORCE ON-THE-JOB
TRAINING IN THE SAGE SYSTEM, (U)

SEP 60 16P HAYER, SYLVIA R. ;

PROJ: 1975

TASK: 76893

MONITOR: AFCCDD

TN60 51

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, MILITARY TRAINING),
(*MILITARY TRAINING, TRAINING DEVICES), (*TRAINING
DEVICES, EFFECTIVENESS), LEARNING, TRAINING (U)
IDENTIFIERS: 1960, SAGE (U)

A TEACHING MACHINE WAS USED FOR MILITARY ON-THE-JOB
TRAINING IN SAGE OPERATIONS OVER A 16-MONTH PERIOD.
THIS WAS A FOLLOW-UP OF A BRIEF FEASIBILITY STUDY.
THE PURPOSE WAS (1) TO SEE IF THE INITIAL
ENTHUSIASM FOR AUTO-INSTRUCTION WOULD CONTINUE AND
INCREASE AS THE NOVELTY EFFECT WANED, AND (2) TO
UNCOVER UNANTICIPATED IMPLEMENTATION PROBLEMS.
OPERATORS SUSTAINED AND INCREASED THEIR USE OF THE
TEACHING MACHINE DURING THE OBSERVATION PERIOD.
THE TRAINING STAFF CONTINUED TO FAVOR USE OF THE
DEVICE. PATTERNS OF USAGE RELATED TO PROGRAM
FAMILIARITY AND CREW PROFICIENCY ARE DESCRIBED.
PROBLEMS IN APPLICATION OF AUTO-INSTRUCTION ARE
NOTED. SOME MAY BE UNIQUE TO MILITARY ON-THE-JOB
TRAINING FOR COMPLEX ELECTRONIC SYSTEMS SUCH AS
SAGE. THESE PROBLEMS RELATE TO (1) PROGRAMING
CAPABILITY, (2) TYPES OF TRAINING TASKS, (3)
TEACHING MACHINE DESIGN, AND (4) PROGRAM DESIGN.
SOME RESEARCH REQUIREMENTS ARE INDICATED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70MK08

AD-420 521

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE DESIGN OF INFORMATION PROCESSING SYSTEMS FOR
REALIZING EDUCATIONAL IDEALS, (U)

AUG 63 22P COGSWELL, JOHN F. ; EGBERT,

ROBERT L. ;

REPT. NO. SP1326

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•DATA PROCESSING SYSTEMS, EDUCATION),
(•EDUCATION, DATA PROCESSING SYSTEM), LEARNING,
TEACHING MACHINES, SIMULATION, STUDENTS, PERFORMANCE
TESTS, GROUP DYNAMICS, INFORMATION RETRIEVAL (U)
IDENTIFIERS: 1963, INFORMATION PROCESSING (U)

DISCUSSES A CURRENT RESEARCH PROJECT AIMED TOWARD
THE REALIZATION OF TWO EDUCATIONAL IDEALS: 1. THE
INDIVIDUALIZATION OF INSTRUCTION, AND 2. THE
UNDERSTANDING OF STUDENTS AS INDIVIDUALS. DESCRIBES
THE CONTINUOUS PROGRESS PLAN (CPP) TO BE USED
AT THE BASSETT HIGH SCHOOL DISTRICT IN
EASTERN LOS ANGELES COUNTY, USING THESE
STUDIES AS A SPRINGBOARD FOR PROJECTING AHEAD,
SUGGESTS SEVERAL HYPOTHESES ABOUT THE USE OF
INFORMATION PROCESSING IN EDUCATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-421 465

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

READING AND RELATED VERBAL LEARNING, (U)

AUG 63

59p

SILBERMAN, HARRY F. ;

PROJ: SP1105 001 01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•LEARNING, VERBAL BEHAVIOR), (•VERBAL BEHAVIOR, LEARNING), (•READING), EDUCATION, REACTION (PSYCHOLOGY), SEQUENCES (U)

IDENTIFIERS: PROGRAMMED READING, 1963 (U)

PRESENTS A REVIEW THAT INCLUDES RELEVANT TO THE APPLICATION OF PROGRAMMING PRINCIPLES TO READING INSTRUCTION, WITH EMPHASIS ON BEGINNING READING. STATES THAT THE ORGANIZATION OF THIS PAPER DIFFERS FROM THE USUAL DIVISION OF READING RESEARCH INTO SUCH TOPICS AS METHODS, MATERIALS, COMPREHENSION, AND REMEDIATION. INSTEAD, THE FOLLOWING TOPICS HAVE BEEN USED: SEQUENCING FACTORS, STIMULUS-RESPONSE FACTORS, REINFORCEMENT FACTORS, MEDIATION EFFECTS, INDIVIDUAL DIFFERENCES, AND PROGRAM EVALUATIONS. REPORTS THAT THIS STRUCTURE CORRESPONDS WITH THE PARADIGM OF PROGRAMMED INSTRUCTION IN WHICH DESIRED OVERT AND COVERT RESPONSES ARE DEFINED, STIMULI ARE DESIGNED TO EVOKE THEM, REINFORCERS ARE APPLIED AS NEEDED, ITEMS ARE ARRANGED IN A SYSTEMATIC SEQUENCE WITH PROVISION FOR INDIVIDUAL DIFFERENCES IN LEARNING RATE, AND PROCEDURES ARE MODIFIED ON THE BASIS OF LEARNER PERFORMANCE. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-422 762

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF

THE USE OF OBJECTIVES IN TEACHING MATHEMATICS, (U)

MAY 63 21P JONES, E. I. IDUDEX, E. E. I

BOAZ, H. B. I

MONITOR: NPRA C

TB63 7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (LEARNING, MATHEMATICS), (EDUCATION,

SONAR PERSONNEL), (TRAINING, MATHEMATICS)

(U)

IDENTIFIERS: 1963, PROGRAMMED INSTRUCTION

(U)

THIS STUDY WAS DONE TO FIND OUT WHETHER TELLING STUDENTS WHAT WAS EXPECTED OF THEM IN A VERY SPECIFIC FASHION, AND ALSO TELLING THEM HOW THEY WOULD BE EVALUATED, WOULD IMPROVE THEIR PERFORMANCE. THE AREA THAT WAS SELECTED FOR INVESTIGATION WAS THE MATHEMATICS PORTION OF THE ADVANCED SONARMAN COURSE (C-370), GIVEN AT THE FLEET ANTI-SUBMARINE WARFARE SCHOOL, SAN DIEGO. FOR EACH SUB-SECTION OF THE COURSE THE STUDENTS IN THE EXPERIMENTAL CLASS WERE GIVEN EXPLICIT STATEMENTS OF THE MATHEMATICAL OPERATIONS AND CONCEPTS THAT THEY WERE EXPECTED TO LEARN. IN ADDITION, THEY WERE GIVEN THE CRITERIA THAT WOULD BE USED TO MEASURE THEIR LEARNING. THE PERFORMANCE OF THE EXPERIMENTAL CLASS WAS COMPARED WITH THAT OF TWO PREVIOUS CLASSES ON TWO TESTS WHICH COVERED THE MATHEMATICS AREAS GIVEN IN THE COURSE. THE EXPERIMENTAL CLASS DID PERFORM SIGNIFICANTLY BETTER ON THESE TWO TESTS THAN THE PREVIOUS CLASSES. THE SUCCESSFUL USE OF OBJECTIVES AND CRITERIA HAS LED THE FLEET ANTI-SUBMARINE WARFARE SCHOOL TO ADOPT THIS TECHNIQUE IN THE TEACHING OF MATHEMATICS IN COURSE C-370. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-422 846

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
CONSTRUCTION OF SCHOOL SIMULATION VEHICLE, (U)
AUG 63 41P COGSWELL, J. F. ; EGBERT, R. L.
; MARSH, D. G. ; YETT, FRANK ;
REPT. NO. 1409

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+TEACHING MACHINES, MODELS (SIMULATION)),
(+EDUCATION), (+PROGRAMMING (COMPUTERS)) (U)
IDENTIFIERS: 1963 (U)

DESCRIBES THE CURRENT STATUS OF THE SCHOOL
SIMULATION VEHICLE BEING CONSTRUCTED UNDER PARTIAL
SUPPORT OF USOE (U. S. OFFICE OF EDUCATION)
GRANT NUMBER 7-14-9120-217 (EGBERT, 1963).
DESCRIBES A GENERAL SCHOOL SIMULATOR, WHICH IS BEING
PROGRAMMED IN SIMPAC AND THE RULES GENERATED FOR A
COMPUTER TRY-OUT OF THE FIRST, PILOT VERSION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-423 005

GEORGE WASHINGTON UNIV WASHINGTON D C SCHOOL OF
ENGINEERING

THE INTRODUCTION OF PROGRAMMED LEARNING TECHNIQUES
INTO THE ON-THE-JOB TRAINING FUNCTION OF AN AIR FORCE
COMMUNICATIONS CENTER. (U)

AUG 63 134P CADWELL, HARRY B. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS.

DESCRIPTORS: (*TEACHING MACHINES, EFFECTIVENESS),
(*PROGRAMMING (COMPUTERS), LEARNING), (*LEARNING,
EFFECTIVENESS)

IDENTIFIERS: 1963

(U)

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-425 184

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
GAKU: AN ARTIFICIAL STUDENT OF PROBLEM SOLVING, (U)
SEP 63 45p HORMANN, AIKO M. ISHAFFER,
STUART S. IVAN WORKER, THEODORE A. ;
REPT. NO. TM1524 000 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), DATA PROCESSING
SYSTEMS), (*DATA PROCESSING SYSTEMS, PROGRAMMING
(COMPUTERS)), LEARNING, TEST CONSTRUCTION (PSYCHOLOGY),
PERFORMANCE TESTS (U)
IDENTIFIERS: 1963, GAKU, PROBLEM SOLVING (U)

DESCRIBES RESEARCH TO CONSTRUCT, BY PROGRAMMING ON
A COMPUTER, AN INTELLIGENT LEARNING SYSTEM CAPABLE OF
HANDLING A SET OF VARYING AND INCREASINGLY COMPLEX
TASKS WHICH, WHEN PERFORMED BY A HUMAN BEING, ARE
USUALLY SAID TO REQUIRE INTELLIGENCE. STATES THAT
THE BEHAVIOR OF THE SYSTEM IS DETERMINED BY BOTH
DIRECT AND INDIRECT MEANS. REPORTS THAT THE DIRECT
MEANS INVOLVES DETAILED, EXPLICIT SPECIFICATION OF
RESPONSES OR RESPONSE PATTERNS IN THE FORM OF BUILT-
IN PROGRAMS, AND THAT THE INDIRECT MEANS IS SUPPLIED
BY MECHANISMS WHICH THEMSELVES ARE BUILT-IN PROGRAMS
BUT WHICH ARE CAPABLE OF COLLECTING, ORGANIZING, AND
TRANSFORMING INFORMATION AS WELL AS GENERATING AND
MODIFYING PROGRAMS UNDER A SET OF CONDITIONS
INCLUDING INTERACTIONS WITH THE SYSTEM'S ENVIRONMENT.
STATES THAT THE INFORMATION AND PROGRAMS GENERATED
OR MODIFIED INFLUENCE SUBSEQUENT ACTION (OVERT OR
COVERT) OF THE SYSTEM AND THAT THE MECHANISMS ARE
USED TO SUPPLY A BASIC FRAMEWORK WHICH PROVIDES
POTENTIAL CAPABILITIES IN A VARIETY OF SITUATIONS.
DESCRIBES AN ATTEMPT TO COORDINATE THREE
MECHANISMS, EACH WORKING IN A DIFFERENT PHASE OF
PROBLEM-SOLVING ACTIVITIES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-427 029

MITRE CORP BEDFORD MASS

FIRST CONGRESS ON THE INFORMATION SYSTEM SCIENCES.

SESSION 14. AUTOMATED INSTRUCTIONAL TECHNIQUES. (U)

NOV 63 142P

REPT. NO. SS 14

CONTRACT: AF33 600 39852

PROJ: 704

MONITOR: ESD TDR63 474 14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, EDUCATION),
(*EDUCATION, COMPUTERS), (*TEACHING MACHINES, LINEAR
PROGRAMMING), TEACHING MACHINES, EDUCATION,
COMPUTERS (U)

IDENTIFIERS: INFORMATION PROCESSING, 1963, PROGRAMMED
INSTRUCTION, COMPUTER BASED INSTRUCTIONAL SYSTEMS (U)

A SAMPLE MANUAL LINEAR TEACHING EXERCISE IS PRESENTED, AND THE DIFFERENCES BETWEEN IT AND BRANCHING PROGRAMS ARE EXPLAINED BY EXAMPLES AND FLOW CHARTS. THE USE OF COMPUTER-BASED INSTRUCTIONAL SYSTEMS IS DISCUSSED, AND THE THREE MAJOR SITUATIONS WHICH WOULD JUSTIFY THE EXTRA COST AND COMPLEXITY OF COMPUTER EQUIPMENT ARE COVERED IN DETAIL. THESE SITUATIONS INCLUDE: (1) RESEARCH, WHERE PRACTICAL APPLICABILITY IS NOT A MAJOR CONSIDERATION; (2) SPECIAL TEACHING PROBLEMS, WHERE THE EFFICIENCY OF THE SYSTEM OUTWEIGHS EQUIPMENT COST CONSIDERATIONS; AND (3) THE USE OF SPECIAL-PURPOSE, REALISTICALLY-PRICED EQUIPMENT OR TIME-SHARING THE USE OF A HIGHER-PRICED CENTRALIZED SYSTEM WHERE THE PROGRAMS REACH A LARGE NUMBER OF STUDENTS. THE PAPER CONCLUDES WITH A BRIEF FORECAST OF THE FUTURE OF COMPUTERBASED INSTRUCTIONAL SYSTEMS. A CONCEPT OF COMPUTER TEACHING IS INTRODUCED, AND EXPERIMENTAL METHODS, EQUIPMENT, AND RESULTS ARE USED TO FORM A FRAMEWORK FOR DISCUSSION. THE VIEW-POINT IS TAKEN THAT A CONVERSATIONAL INTERACTION OR FEEDBACK TAKES PLACE BETWEEN THE STUDENT AND TEACHER, HUMAN OR COMPUTER, MAKING LEARNING MUCH EASIER. THE USE OF LARGE, HIGH-SPEED, GENERAL PURPOSE, DIGITAL COMPUTERS AS TEACHING MACHINES IS DISCUSSED AS AN INTRODUCTION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-428 209

ENTELEK INC NEWBURYPORT MASS

THE LOGICAL BASIS OF TEACHING. I. THE EFFECT OF
SUBCONCEPT SEQUENCE ON LEARNING. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

JAN 64 75p HICKEY, ALBERT E. ; NEWTON,

JOHN M. ;

CONTRACT: NONR421500

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TRAINING, LEARNING), TRANSFER OF
TRAINING, ANALYSIS, MODELS (SIMULATION), THEORY,
DECISION MAKING, TRANSFORMATIONS (MATHEMATICS), LINEAR
PROGRAMMING, PROGRAMMING LANGUAGE, LINEAR SYSTEMS (U)
IDENTIFIERS: SEQUENCE VARIABLES, TEACHING, LOGIC
SPACE, 1964, BLOCK DIAGRAMS (U)

THIS STUDY (1) EXPLORES THE STRUCTURE OF
KNOWLEDGE AND THE RELATIONSHIP BETWEEN A
MULTIDIMENSIONAL KNOWLEDGE SPACE AND THE ONE-
DIMENSIONAL TEACHING SPACE. (2) OFFERS SEVERAL
HYPOTHESES FOR TRANSFORMATIONS FROM THE FIRST SPACE
TO THE SECOND. (3) DEMONSTRATES THE RESULTS OF
DIFFERENT HYPOTHESES USING ECONOMICS AS
SUBJECT MATTER, AND (4) DESCRIBES AN EXPERIMENT
DESIGNED TO SEE WHETHER ALTERNATIVE SUBCONCEPT
SEQUENCES HAVE A SIGNIFICANT DIFFERENTIAL EFFECT ON
LEARNING. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-429 508

BUREAU OF NAVAL PERSONNEL WASHINGTON D C
PROGRAMMED INSTRUCTION IN BASIC ELECTRICITY. (U)
AUG 63 15P STANDLEE, LLOYD S. ;HOOPRICH,
EUGENE A. ;LAGAIPA, JOHN ;
MONITOR: NAVPERS TB63 10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, INSTRUCTION MANUALS),
(*TRAINING DEVICES, LEARNING), ELECTRICITY, INSTRUCTORS,
TEST METHODS, STUDENTS, TEXTBOOKS (U)
IDENTIFIERS: 1963, PROGRAMMED INSTRUCTION (U)

STUDENTS IN EIGHT CLASSES OF THE BASIC SONARMAN
(SURFACE) COURSE WERE TAUGHT BASIC ELECTRICITY
UNDER THE EXPERIMENTAL CONDITIONS OF PROGRAMED VS,
CONVENTIONAL METHOD OF INSTRUCTION, HIGH VS. LOWER
QUALIFIED INSTRUCTORS, AND EASY (DC) VS. DIFFICULT
(AC) SUBJECT MATTER. NO ONE METHOD OF
INSTRUCTION, ABILITY LEVEL OF INSTRUCTORS, OR
DIFFICULTY LEVEL OF SUBJECT MATTER WAS FOUND
CONSISTENTLY TO YIELD SUPERIOR STUDENT ACHIEVEMENT.
NOR WERE THERE CONSISTENT INTERACTION EFFECTS.
OVER-ALL THERE WAS A TENDENCY FOR STUDENTS TO
ACHIEVE SLIGHTLY MORE UNDER THE PROGRAMED METHOD OF
INSTRUCTION. STUDENTS' ATTITUDES WERE MORE
FAVORABLE TOWARD THE PROGRAMED METHOD OF INSTRUCTION
WHEN THE SUBJECT MATTER WAS RELATIVELY EASY (DC)
THAN WHEN THE SUBJECT MATTER WAS DIFFICULT (AC).
INSTRUCTORS' ATTITUDES TOWARD PROGRAMED INSTRUCTION
TENDED TO BE NEGATIVE. STUDENTS AND INSTRUCTORS
AGREED, HOWEVER, THAT THE PROGRAMED MATERIALS WERE
RELATIVELY EASY TO READ. THOUGH THE PROGRAMED
METHOD OF INSTRUCTION TENDED TO BE SLIGHTLY SUPERIOR
IN TERMS OF OBJECTIVE TESTS OF STUDENT ACHIEVEMENT,
BOTH STUDENTS AND INSTRUCTORS THOUGHT THAT THE
PROGRAMED MATERIALS SHOULD BE USED TO SUPPLEMENT
RATHER THAN TO REPLACE CONVENTIONAL METHODS OF
INSTRUCTION. (AUTHOR) (U)

UNCLASSIFIED

JDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-430 899

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE COMPUTER AS AN INSTRUCTIONAL TOOL: A SUMMARY,

(U)

FEB 64 25p BUSHNELL, DON D. ;
REPT. NO. SP 1554

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, EDUCATION),
(*LEARNING, TEACHING MACHINES), (*EDUCATION,
AUTOMATION), (*DATA PROCESSING SYSTEMS, EDUCATION),
STUDENTS, COMPUTER, TRAINING, DECISION MAKING, TRAINING
DEVICES (U)

IDENTIFIERS: COUNSELORS, TEACHERS, 1964, INSTRUCTIONAL
TOOL (U)

THIS REPORT DISCUSSES THE DEVELOPMENTS IN COMPUTER-
BASED TEACHING MACHINES, RAPID INFORMATION RETRIEVAL
SYSTEMS, AND THE ADVANCES IN COMPUTER TECHNOLOGY FOR
AIDING TEACHERS AND COUNSELORS IN THE DIAGNOSIS OF
STUDENT LEARNING NEEDS AND IN SELECTING APPROPRIATE
TEACHING STRATEGIES SEEM TO BE THE PRIMARY FACTORS
HOLDING THE ATTENTION OF THE RESEARCHERS RESPONSIBLE
FOR INNOVATIONS IN EDUCATIONAL DATA PROCESSING. IT
ALSO REPORTS THAT BY APPROACHING EDUCATIONAL DATA
PROCESSING WITH EMPHASIS ON INSTRUCTIONAL SYSTEMS, WE
GAIN A BROADER PERSPECTIVE ON THE POTENTIAL OF
COMPUTER TECHNOLOGY IN EDUCATION. PROGRESS MUST BE
MADE NOT ONLY IN DATA PROCESSING TECHNOLOGY, BUT IN
OUR KNOWLEDGE OF EDUCATIONAL REQUIREMENTS.
CONCLUDES THAT MORE MUST BE LEARNED ABOUT THE
KINDS OF INFORMATION NEEDED BY STUDENTS, TEACHERS,
COUNSELORS, AND ADMINISTRATORS AND STANDARDIZED
METHODS MUST BE DEVELOPED FOR CODING AND RECORDING
THIS INFORMATION, SO THAT HIGH-SPEED PROCESSING
TECHNIQUES CAN BE USED EFFICIENTLY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-432 334

RAND CORP SANTA MONICA CALIF

THE SIMULATION OF VERBAL LEARNING BEHAVIOR, (U)

MAR 61 32P FEIGENBAUM, E. A. ;

REPT. NO. P2235

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*VERBAL BEHAVIOR, LEARNING), (*LEARNING, SIMULATION), (*DATA PROCESSING SYSTEMS, MODELS (SIMULATIONS)), COMPUTERS, BEHAVIOR (U)

IDENTIFIERS: ASSOCIATIVE MEMORY, DISCRIMINATION LEARNING, EPAM, ROTE LEARNING, ELEMENTARY PERCEIVER AND MEMORIZER, 1961 (U)

AN INFORMATION PROCESSING MODEL OF ELEMENTARY HUMAN SYMBOLIC LEARNING IS GIVEN A PRECISE STATEMENT AS A COMPUTER PROGRAM, CALLED ELEMENTARY PERCEIVER AND MEMORIZER (EPAM), THE PROGRAM SIMULATES THE BEHAVIOR OF SUBJECTS IN EXPERIMENTS INVOLVING THE ROTE LEARNING OF NONSENSE SYLLABLES, A DISCRIMINATION NET WHICH GROWS IS THE BASIS OF EPAM'S ASSOCIATIVE MEMORY. FUNDAMENTAL INFORMATION PROCESSES INCLUDE PROCESSES FOR DISCRIMINATION, DISCRIMINATION LEARNING, MEMORIZATION, ASSOCIATION USING CUES, AND RESPONSE RETRIEVAL WITH CUES. MANY WELL-KNOWN PHENOMENA OF ROTE LEARNING ARE TO BE FOUND IN EPAM'S EXPERIMENTAL BEHAVIOR, INCLUDING SOME RATHER COMPLEX FORGETTING PHENOMENA. EPAM IS PROGRAMMED IN INFORMATION PROCESSING LANGUAGE V. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-433 144

STANFORD RESEARCH INST MENLO PARK CALIF
THE PERCEPTRON CORRECTION PROCEDURE IN NON-SEPARABLE
SITUATIONS. (U)

FEB 64 19p EFRON, BRADLEY :

CONTRACT: AF30 602 2943

PROJ: 5581

TASK: 558104

MONITOR: RADC

TDR63 533

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TEACHING MACHINES, LEARNING), (•PATTERN
RECOGNITION, ACUITY), (•BRAIN, BIONICS), ARTIFICIAL
INTELLIGENCE, MATHEMATICAL INTELLIGENCE, MATHEMATICAL
ANALYSIS, OPERATION (U)

IDENTIFIERS: 1964, PERCEPTRON CONVERGENCE, ADAPTIVE
MECHANISM, PERCEPTRONS, CONVERGENCE THEOREM,
PERCEPTRON CORRECTION, THEOREM (U)

THE BEHAVIOR OF THE STANDARD PERCEPTRON
CORRECTION PROCEDURE WHEN THE UNDERLYING PATTERNS ARE
NON-SEPARABLE IS DISCUSSED. IT IS SHOWN THAT IN
THIS CASE THE MAGNITUDE OF THE SUCCEEDING WEIGHT
VECTORS REMAINS BOUNDED. MOREOVER, IF THE
MAGNITUDES APPROACH A LIMIT THIS LIMIT IS ACTUALLY
ATTAINED, AND THE ENSUING BEHAVIOR IS PARTICULARLY
SIMPLE. A CONVERGE TO THE USUAL PERCEPTRON
CONVERGENCE THEOREM IS PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-435 032

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB

SOME EDUCATIONAL PROBLEMS AND PROSPECTS OF A SYSTEMS
APPROACH TO INSTRUCTION, (U)

MAR 64 33P STOLUNOW, LAWRENCE M. ;

REPT. NO. NO. 2

CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, MODELS (SIMULATIONS)),
(*EDUCATION, DESIGN), (*EDUCATION, TEACHING MACHINES),
(*TEACHING MACHINES, LEARNING), AUTOMATION, LEARNIG (U)
IDENTIFIERS: INSTRUCTION MODELS, COMPUTER BASED
INSTRUCTION, INSTRUCTIONAL PROCESS, CLASSROOM
SIMULATION, TUTORIAL MODELS, PROGRAMMED INSTRUCTION,
IDIOMORPHIC PROGRAMMING (U)

A SYSTEMS APPROACH TO INSTRUCTION CAN HAVE MANY
IMPLICATIONS. THE TWO BASIC ONES CONSIDERED HERE
WERE ITS CONTRIBUTIONS (A) TO RESEARCH ON
INSTRUCTION AND (B) TO INSTRUCTION AS AN
IMPORTANT SCHOOL PROCESS. THE PRIMARY IMPACT OF
THE SYSTEMS APPROACH IS TOWARD THE RESEARCH, ALSO
UNDERGOING INCREASINGLY ACTIVE DEVELOPMENT, HOWEVER,
IS THE WORK ON SCHOOL APPLICATIONS OF THE SYSTEMS
APPROACH. PROBABLY THE MOST ACTIVE AND IMPORTANT
DEVELOPMENTS RELATE TO THE MODELS OF INSTRUCTION.
EARLY EFFORTS AT MODELS HAVE RESULTED IN SEVERAL
DIFFERENT KINDS THAT ARE BEING USED. THE PROSPECTS
FOR THE FUTURE SEEM PARTICULARLY CHALLENGING AND
INTERESTING. AMONG THESE NEW DEVELOPMENTS THE
COMPUTER SEEMS PARTICULARLY PROMISING. SEVERAL
WAYS IN WHICH IT COULD PROMOTE UNDERSTANDING OF
INSTRUCTION AND IMPLIMENT INSTRUCTION WERE DESCRIBED.
(AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-436 347

STANFORD RESEARCH INST MENLO PARK CALIF
CLASSIFICATION AND GENERALIZATION CAPABILITIES OF
LINEAR THRESHOLD UNITS.

(U)

FEB 64 23P COVER, THOMAS M. :

CONTRACT: AF30 602 2943

PROJ: 5581

TASK: 558104

MONITOR: RADC, TDRA4 32

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (LEARNING MACHINES, NETWORKS), ARTIFICIAL
INTELLIGENCE, COMPUTER LOGIC, PATTERN RECOGNITION,
LINEAR SYSTEMS, SET THEORY, ALGEBRAIC TOPOLOGY,
PROBABILITY, SEQUENCES

(U)

IDENTIFIERS: 1964, POINT-SET TOPOLOGY

(U)

THIS REPORT REPRESENTS WORK IN PROGRESS ON
PROPERTIES OF LINEAR THRESHOLD FUNCTIONS. IN D
DIMENSIONAL BINARY SPACE THERE EXISTS N SEPARATE
POINTS. FURTHERMORE THERE EXISTS TO THE N POWER
POSSIBLE COMBINATIONS (DICHOTOMY) OF THESE
POINTS. NOT ALL OF THESE COMBINATIONS CAN BE
SEPARATED BY LINEAR THRESHOLD FUNCTIONS. THIS
PAPER CONCERNS ITSELF WITH DETERMINING WHICH
COMBINATION CAN OR CANNOT BE SEPARATED. SURFACES
OTHER THAN HYPERPLANES ARE ALSO STUDIED. THESE
INCLUDE SURFACES OBTAINED BY MULTIPLE LINEAR
THRESHOLD DEVICES AND QUADRATIC SURFACES.
CONSIDERATION IS ALSO GIVEN TO TRAINING PROCEDURES
IN THE SEPARATION OF RANDOM PATTERNS BY LINEAR
THRESHOLD DEVICES. (AUTHOR)

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-437 375

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE SORCERER'S APPRENTICE,

APR 63 3P HERRIFIELD, PHILIP R. ;
REPT. NO. SP1195

(U)

UNCLASSIFIED REPORT
REPRINT FROM EDUCATIONAL AND
PSYCHOLOGICAL MEASUREMENT, 24:1, PP. 115-117, 1964.
(COPIES NOT SUPPLIED BY DDC)
SUPPLEMENTARY NOTE.

DESCRIPTORS: (•EDUCATION, MEASUREMENT),
(•PSYCHOMETRICS, ANALYSIS), (•COMPUTERS, LABOR), DATA,
DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS, REDUCTION,
TRANSFORMATIONS

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-438 255

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
USE OF AUTOMATED INSTRUCTION IN REVIEW MATHEMATICS
FOR THE BASIC SONARMAN COURSE (C-560).

(U)

JAN 64 14P KEMP, EUGENIA N. ;

MONITOR: NAVPERS TB64 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+TEACHING MACHINES, MATHEMATICS),
(+EDUCATION, SONAR PERSONNEL), SONAR, NAVAL, PERSONNEL,
TRAINING, ELECTRICITY, ELECTRONICS, ALGEBRA, ERRORS,
TABLES (U)

IDENTIFIERS: C-560 (BASIC SONARMAN COURSE), BASIC
SONARMAN COURSE, SCORES (U)

ABILITY TO USE CERTAIN FUNDAMENTAL MATHEMATICAL
PROCESSES IS CONSIDERED NECESSARY FOR ACQUIRING THE
KNOWLEDGE OF ELECTRICITY AND ELECTRONICS TAUGHT IN
THE BASIC SONARMAN COURSE, C-560, GIVEN AT
THE FLEET ANTI-SUBMARINE WARFARE SCHOOL,
SAN DIEGO. REFRESHER TRAINING IN MATHEMATICS
IS GIVEN TO ALL NEW STUDENTS AFTER NORMAL SCHOOL
HOURS DURING THE FIRST FOUR WEEKS OF COURSE C-
560. IF THIS REFRESHER TRAINING COULD BE PROGRAMED
FOR INDEPENDENT SELF-STUDY, DISTINCT ADVANTAGES WOULD
ACCUE SUCH AS REDUCING THE INSTRUCTOR LOAD, MAKING
POSSIBLE INDIVIDUAL STUDY IMMEDIATELY AFTER THE
STUDENT ARRIVES AT THE SCHOOL, AND PERMITTING
DIFFERENTIAL TRAINING FOR DIFFERING INDIVIDUAL NEEDS.
THIS STUDY WAS CONDUCTED TO DETERMINE WHETHER THE
DEVELOPMENT OF PROGRAMED MATERIALS FOR THE REFRESHER
TRAINING WOULD BE FEASIBLE AND WHETHER THESE
MATERIALS WOULD BE AS EFFECTIVE AS THE CONVENTIONAL
INSTRUCTION. THREE OF THE AREAS COVERED IN THE
MATHEMATICS REVIEW WERE PROGRAMED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-443 109

STANFORD UNIV CALIF STANFORD ELECTRONICS LABS
THE SYNTHESIS OF MACHINES WHICH LEARN WITHOUT A
TEACHER, (U)

APR 64 19P FRALICK, S. C. 1

REPT. NO. TR6103 8,64 028

CONTRACT: NONR22524

PROJ: NR373 360

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, DECISION THEORY),
PATTERN RECOGNITION, FEEDBACK, SYNTHESIS, BINARY
ARITHMETIC, DIGITAL COMPUTERS, LEARNING (U)
IDENTIFIERS: LEARNING MACHINES (U)

TECHNIQUES OF DECISION THEORY ARE APPLIED TO THE
PROBLEM OF LEARNING TO RECOGNIZE PATTERNS WITHOUT A
TEACHER. AS A RESULT A GENERALIZED A POSTERIORI
PROBABILITY COMPUTER IS OBTAINED WHICH INCLUDES THE
SOLUTION OF THE PROBLEM OF LEARNING WITHOUT A
TEACHER, LEARNING WITH A TEACHER, AND NO LEARNING.
THE RESULTING EQUATIONS ARE SHOWN TO DESCRIBE A
SYSTEM WHICH MAY BE SYNTHESIZED IN DELAY FEEDBACK
FORM, OF FIXED SIZE, WHICH IS STABLE AND CONVERGES TO
THAT SYSTEM WHICH WOULD BE OPTIMUM IF A PRIORI
KNOWLEDGE WAS AVAILABLE SO THAT NO LEARNING WAS
REQUIRED. THE SOLUTION IS USED TO SYNTHESIZE THREE
SYSTEMS IN BLACK BOX FORM: (1) A GENERAL SYSTEM
WHICH LEARNS TO MAKE BINARY DECISIONS, A SPECIFIC
EXAMPLE OF THIS SYSTEM, AND (3) A GENERAL SYSTEM
WHICH LEARNS TO MAKE MULTIPLE-CATEGORY
CLASSIFICATIONS. (AUTHOR) (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-447 146

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
USE OF EXPLORATORY RESEARCH AND INDIVIDUAL TUTORING
TECHNIQUES FOR THE DEVELOPMENT OF PROGRAMMING METHODS
AND THEORY. (U)

DESCRIPTIVE NOTE: FINAL REPT..

JUN 64 8p SILBERMAN, H. ; COULSON, J. ;
MELARAGNO, R. ; NEWMARK, G. ;
REPT. NO. TM895 200 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, PROGRAMMING (COMPUTERS)),
TRAINING DEVICES, LEARNING, THEORY, TEACHING MACHINES,
READING, GEOMETRY (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, ARITHMETIC,
SPANISH LANGUAGE (U)

THIS RESEARCH HAS DEMONSTRATED THAT THE EXPLORATORY
TUTORIAL APPROACH TO PROGRAM EVALUATION AND REVISION
PROVIDES A POWERFUL TECHNIQUE FOR DEVELOPING
EFFECTIVE PROGRAMMED MATERIALS AND FOR GENERATING
HYPOTHESES ABOUT IMPORTANT PROGRAM VARIABLES.
THREE GENERALIZATIONS, OR PRINCIPLES, WERE INDUCED
FROM THE OBSERVATIONS MADE DURING THE TUTORIAL
SESSIONS IN THE FOUR SUBJECT AREAS. THE PRINCIPLES
ARE: (1) EVERY SKILL INCLUDED IN THE PROGRAM
OBJECTIVES, AND EVERY SUBSKILL THAT LOGICALLY
CONTRIBUTES TO THOSE OBJECTIVES, SHOULD BE EXPLICITLY
COVERED BY THE PROGRAM UNLESS IT EXISTS IN THE
STUDENT'S ENTRY REPERTOIRE; (2) ANY MATERIALS
THAT DO NOT CONTRIBUTE TO THE PROGRAM OBJECTIVES, AS
INDICATED BY LOGICAL ANALYSIS, SHOULD BE ELIMINATED;
AND (3) THE STUDENT SHOULD BE REQUIRED TO
DEMONSTRATE MASTERY OF EACH COMPONENT SUBSKILL BEFORE
HE IS ALLOWED TO ADVANCE TO NEW TOPICS THAT ARE BASED
ON THE EARLIER MATERIALS. THE THREE PRINCIPLES OF
PROGRAM IMPROVEMENT, FILLING GAPS, ELIMINATING
IRRELEVANCIES, AND REQUIRING MASTERY, ALTHOUGH
INTUITIVELY OBVIOUS, BEAR THE ADDED STRENGTH OF
HAVING BEEN INDUCED EMPIRICALLY FROM INDEPENDENT
OBSERVATIONS. TWO OF THESE PRINCIPLES RECEIVED
EXPERIMENTAL VERIFICATION WITH ANOTHER PROGRAM AND
A NEW SAMPLE OF STUDENTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-450 896

MASSACHUSETTS INST OF TECH CAMBRIDGE
A MULTIUSER COMPUTATION FACILITY FOR EDUCATION AND
RESEARCH, (U)

NOV 63 9P DENNIS, JACK B. I
CONTRACT: NONR-4102(01), NSF-G16526

UNCLASSIFIED REPORT

REPRINT FROM COMMUNICATIONS OF THE ACM, 7:9, PP. 521-
529, SEP 64. (COPIES NOT SUPPLIED BY DDC)

DESCRIPTORS: (*COMPUTERS, SCIENTIFIC RESEARCH), REVIEWS,
TYPEWRITERS, EDUCATION, AUTOMATION, PROGRAMMING
(COMPUTERS), COMMUNICATION SYSTEMS, DATA PROCESSING
SYSTEMS (U)

IMPLEMENTATION IS DESCRIBED FOR A SMALL-SCALE
MULTIUSER COMPUTER SYSTEM THAT PERMITS SEVERAL USERS
TO WORK INDEPENDENTLY WITH THE MACHINE, AND TO OBTAIN
SATISFACTORY RESPONSE USING TYPEWRITER COMMUNICATION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK03

AD-451 359

NEW YORK UNIV N Y SCHOOL OF ENGINEERING AND SCIENCE
SHORT-TERM STORAGE AND RETRIEVAL OF PAIRED ASSOCIATE
MATERIAL. (U)

AUG 64 11p MAYZNER, M. S., ISCHOENBERG, K.

M. I

CONTRACT: NONR28556

UNCLASSIFIED REPORT

AVAILABILITY: REPRINT FROM THE JNL. OF PSYCHOLOGY
59 PP 113-123, 1965.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (RECALL, PERFORMANCE TESTS), MEMORY,
ATTENTION, LEARNING, ANALYSIS OF VARIANCE, REACTION
(PSYCHOLOGY), VERBAL BEHAVIOR, DISPLAY SYSTEMS,
INFORMATION RETRIEVAL, COMMAND + CONTROL SYSTEMS,
OPERATORS (PERSONNEL), TIME, STORAGE, PERFORMANCE
(HUMAN), RETENTION

IDENTIFIERS: 1964

(U)

(U)

THE PRESENT STUDY, CONSISTING OF TWO EXPERIMENTS,
WAS DESIGNED TO EXAMINE THE EFFECTS OF LIST LENGTH
AND DISPLAY TIME ON THE SHORT-TERM RETENTION OF
PAIRED-ASSOCIATE MATERIAL. IN EXPERIMENT I,
WITH 90 SS, A THREE-BY-THREE-BY-FIVE MIXED
ANALYSIS-OF-VARIANCE DESIGN WAS USED WITH THREE
LEVELS OF LIST LENGTH (FIVE, SEVEN, AND NINE CITY-
TEMPERATURE PAIRS), THREE LEVELS OF DISPLAY TIME
(15, 30, AND 40 SECONDS), AND FIVE TRIALS PER S,
IN EXPERIMENT II, WITH 20 SS, FOUR OF THE NINE
CONDITIONS INVOLVED IN EXPERIMENT I WERE TESTED
EACH WEEK FOR 10 WEEKS, WITH 20 TRIALS PER WEEK.
THE OVERALL RESULTS INDICATE SIGNIFICANT EFFECTS ON
STORAGE-AND-RETRIEVAL CAPACITY AS A FUNCTION OF LIST
LENGTH, DISPLAY TIME, AND EXTENDED PERIODS OF
PRACTICE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-464 177

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
EXPERIMENTAL EVALUATION OF PROGRAMMED MATERIALS ON
THE MULTIMETER AN/PSM-4.

(U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 65 37P ABRAMS, ALVIN J. :

REPT. NO. TECHNICAL BULLETIN-65-9

PROJ: TAB 1703 01 03 252

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*MULTIMETERS, TRAINING), (*LEARNING,
PROGRAMMING(COMPUTERS)), (*TRAINING,
PROGRAMMING(COMPUTERS)), ANTISUBMARINE WARFARE,
TEST EQUIPMENT(ELECTRONICS), TRAINING DEVICES

(U)

IDENTIFIERS: AN/PSM-4, PROGRAMMED LEARNING,
PROGRAMMED INSTRUCTION, EVALUATION

(U)

THIS REPORT DESCRIBES THE DEVELOPMENT AND
EVALUATION OF A PROGRAMED TEXT AND A PROGRAMED
INSTRUCTOR PRESENTATION ON THE MULTIMETER AN/
PSM4, A COMMONLY USED PIECE OF ELECTRONIC TEST
EQUIPMENT. THE PROGRAMED MATERIALS WERE DEVELOPED
AT THE NAVY TRAINING RESEARCH LABORATORY,
EIGHT-ONE STUDENTS AT THE FLEET ASW SCHOOL,
SAN DIEGO WERE USED IN THE EVALUATION OF THE TWO
PROGRAMED METHODS. THE STUDENTS WERE DIVIDED INTO
THREE GROUPS: 31 WERE TRAINED WITH THE PROGRAMED
TEXT, 16 WERE TRAINED WITH THE PROGRAMED INSTRUCTOR
PRESENTATION AND 35 WERE TRAINED BY THE CONVENTIONAL
METHOD. PERFORMANCE OF THE GROUPS WAS OBSERVED ON
A PRACTICAL TEST ONE WEEK AFTER TRAINING. THE
RESULTS REVEALED THAT: (1) STUDENTS WHO WERE
TRAINED WITH EITHER OF THE PROGRAMED METHODS
PERFORMED BETTER THAN THOSE STUDENTS WHO WERE TRAINED
BY THE CONVENTIONAL METHOD, (2) STUDENTS
LEARNED TO USE THE MULTIMETER AN/PSM-4 IN ITS
ELEMENTARY APPLICATIONS WITH THE PROGRAMED TEXT AS
THE BASIC SOURCE OF INFORMATION, (3) IT WAS
FEASIBLE TO USE THE PROGRAMED TEXT TO INTRODUCE
BEGINNING TECHNICIANS TO THE MULTIMETER, (4)
IT WAS NOT FEASIBLE TO USE THE PROGRAMED INSTRUCTOR
PRESENTATION. (AUTHOR)

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-465 088

MASSACHUSETTS INST OF TECH CAMBRIDGE COMPUTATION
CENTER

PROJECT MAC.

(U)

DESCRIPTIVE NOTE: ANNUAL PROGRESS REPT. NO. 1 FOR PERIOD
ENDING JUL 64.

JUL 64 171P

REPT. NO. MAC-PR-1

CONTRACT: NONR410201

PROJ: NR048 189

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (ENGINEERING PERSONNEL, COMPUTERS),
(SCIENTIFIC PERSONNEL, COMPUTERS), (DIGITAL
COMPUTERS, DATA PROCESSING SYSTEMS), EDUCATION,
SCIENTIFIC RESEARCH, ENGINEERING, CIVIL
ENGINEERING, ELECTRONICS LABORATORIES, SOCIAL
SCIENCES, MANAGEMENT ENGINEERING,
PROGRAMMING (COMPUTERS), DOCUMENTATION,
ARTIFICIAL INTELLIGENCE, CYBERNETICS,
OPTIMIZATION, TIME

(U)

IDENTIFIERS: MAC PROJECT (MULTIPLE-ACCESS-
COMPUTER SYSTEMS)

(U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL
INVESTIGATION OF NEW WAYS IN WHICH DIRECT LINKS TO
ON-LINE COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL
WORK; WHETHER RESEARCH, ENGINEERING DESIGN,
MANAGEMENT, OR EDUCATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /DHK08

AD-482 173 9/2 5/9 15/7
AMERICAN INST FOR RESEARCH PITTSBURGH PA
OPERATIONAL SPECIFICATION FOR COMPUTER DIRECTED
TRAINING IN INTERMEDIATE QUERY LANGUAGE, MODEL II,
FOR SYSTEM 473L, U. S. AIR FORCE HEADQUARTERS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 66 224P CLAPP, DORIS J. ISHETTEL,
HARRIS H. IMAYER, SYLVIA R. ;
CONTRACT: AF 19(628)-2935
PROJ: AF-7682
TASK: 768204
MONITOR: ESD TR-66-252

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
PROGRAMMING (COMPUTERS)), (DATA PROCESSING
SYSTEMS, DISPLAY SYSTEMS), MANAGEMENT CONTROL
SYSTEMS, AIR FORCE TRAINING, FLOW CHARTING, MAN-
MACHINE SYSTEMS, PROGRAMMING LANGUAGES,
SPECIFICATIONS, AIR FORCE PERSONNEL, ERRORS,
ANALYSIS, COMPUTER LOGIC, AUTOMATIC, CONTROL
SEQUENCES (U)
IDENTIFIERS: INTERMEDIATE QUERY LANGUAGE, WEAPON
SYSTEM 473L (U)

THIS OPERATIONAL SPECIFICATION DESCRIBES THE
PROJECT COMPUTER-DIRECTED TRAINING PROGRAM
WHICH PERMITS ACTIVE ON-CONSOLE TRAINING OF PERSONNEL
IN THE WRITING AND PROCESSING THE INTERMEDIATE
QUERY LANGUAGE, MODEL II, STATEMENTS IN
SYSTEM 473L. THIS CAPABILITY CAN BE USED TO
PROVIDE INITIAL TRAINING AND PROFICIENCY MAINTENANCE.
THE FILES, PROGRAMS, AND PROCESSES OF THE PROGRAM
AND A SAMPLE COMPUTER-TRAINEE INTERACTION ARE
DETAILED. GENERAL FLOW CHARTS FOR A POSSIBLE
COMPUTER PROGRAM IMPLEMENTING THE SPECIFICATIONS ARE
PROVIDED, DESIGNED FOR THE LIBRASCOPE L-3055.
THE CAPABILITY CAN BE ADAPTED TO PROVIDE TRAINING
IN THE USE OF OTHER SYSTEM 473L CAPABILITIES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-483 974

5/9

UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS
PERSONNEL RESEARCH GROUP
POTENTIAL USES OF COMPUTERS AS TEACHING MACHINES,

(U)

OCT 61 26P RIGNEY, JOSEPH W. I

UNCLASSIFIED REPORT

DESCRIPTORS: (DIGITAL COMPUTERS, TEACHING
MACHINES), FEASIBILITY STUDIES, HUMAN ENGINEERING,
PERFORMANCE (HUMAN), MAN-MACHINE SYSTEMS,
ACHIEVEMENT TESTS, APPLIED PSYCHOLOGY,
EDUCATION

(U)

THE USE OF INTERACTIVE CAPACITY TO DEAL WITH
INDIVIDUAL DIFFERENCES IN LEARNING HAS POTENTIALITIES
IN AT LEAST THREE TYPES OF LEARNING ENVIRONMENTS.
HOWEVER, ITS APPLICATION TO THIS PROBLEM IN ANY OF
THESE ENVIRONMENTS IS IN RELATIVELY CRUDE STAGES,
ALTHOUGH NOT TECHNOLOGICALLY IMPOSSIBLE TO
IMPLEMENT, DEVELOPING MAN-COMPUTER INTERACTIONS WHICH
WILL ADJUST THE PRESENTATION OF THE MATERIAL TO BE
LEARNED TO INDIVIDUAL CAPABILITIES AND REQUIREMENTS
DEPENDS UPON A SUITABLE BACKGROUND OF PSYCHOLOGICAL
INFORMATION FOR GUIDANCE. AT THE PRESENT TIME,
THERE APPEARS TO BE A GREAT DEAL OF THIS INFORMATION
THAT IS SUGGESTIVE OF DIRECTIONS TO TAKE, AND OF
PROBLEMS THAT WILL ARISE. HOWEVER, IT IS LIKELY
THAT INVESTIGATORS TRYING TO USE THIS NEW TOOL FOR
THIS PURPOSE WILL HAVE TO DEVELOP THEIR OWN SPECIFIC
METHODOLOGY AND THEIR OWN FUND OF RESEARCH EXPERIENCE
WITHIN THE BROADER CONTEXT OF TRADITIONAL STUDIES OF
INDIVIDUAL DIFFERENCES IN LEARNING.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-600 047

IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
SOME PROBLEMS IN INFORMATION SCIENCE WITH EMPHASIS ON
ADAPTATION TO USE THROUGH MAN-MACHINE
INTERACTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. VOL. II, 1 JAN-31
DEC 63,

APR 64 184P

KOCHEN, MANFRED I

CONTRACT: AF19 628 2752

PROJ: 5432

TASK: 543205

MONITOR: AFCL

64 87

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+DATA PROCESSING SYSTEMS, COMMUNICATION
THEORY), (+COMMUNICATION THEORY, DATA PROCESSING
SYSTEMS), (+INFORMATION RETRIEVAL, LEARNING),
PROGRAMMING (COMPUTERS), DATA STORAGE SYSTEMS,
DOCUMENTATION, MEMORY, LANGUAGE

(U)

THE PROBLEM OF REPRESENTING, STORING, RECALLING AND
PROCESSING OF RELEVANT INFORMATION IN THE
INCREASINGLY COMPLEX ENVIRONMENT OF AN ORGANISM WERE
STUDIED BY SIMULATION BASED ON LIST PROCESSING AND BY
THEORETICAL INVESTIGATION DRAWING ON SOCIOLOGY AND
PSYCHOLOGY OF COGNITION, ENGINEERING STUDIES OF SEMI-
AUTOMATED LIBRARY SYSTEMS, AND MATHEMATICAL THEORY OF
GRAPH AND AUTOMATION. THE FOLLOWING ACCOMPLISHMENTS
WERE MADE: PROGRESS TOWARD A LOGICAL STRUCTURING OF
INFORMATION SCIENCE; CLASSIFICATION OF TYPES OF
DISCOURSE, MODELLING OF AN INFORMATION SYSTEM IN
TERMS OF MEMORY, PROCESSOR AND COMPREHENDER
SUBSYSTEMS GOVERNED BY SELF-REGULATORY PRINCIPLES;
OPERATIONAL ANALYSIS OF SPECIAL INFORMATION SYSTEMS;
SPECIFICATION AND CONSTRUCTION OF COMPUTER PROGRAMS
FOR CONCEPT AND LANGUAGE LEARNING; CRITICAL SURVEY OF
ASSOCIATIVE MEMORIES; KEY-ADDRESS TRANSFORMATIONS FOR
FILE ORGANIZATION; AND CLUSTERING ALGORITHMS BASED ON
MEASURES OF RELEVANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 079

STANFORD RESEARCH INST MENLO PARK CALIF

A SIMPLE MODEL OF A PATTERN RECOGNITION SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE 1,

APR 64 28p HALL, D. J. :

CONTRACT: DA36 034AMC03247E

PROJ: 4565

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PATTERN RECOGNITION, MODELS
(SIMULATIONS)), (BIONICS, SIMULATORS), DESIGN,
OPERATION (U)

IDENTIFIERS: LEARNING MACHINES (U)

THIS MODEL IS TO BE USED TO DEMONSTRATE THE
FUNCTIONAL STRUCTURE OF A LEARNING MACHINE OR
PATTERN RECOGNITION SYSTEM THAT IS SIMILAR IN BASIC
PRINCIPLE TO THE LEARNING MACHINE RECENTLY DESIGNED
AND CONSTRUCTED AT SRI. IN ADDITION, THE MODEL
SHOWS THE IMPORTANT ROLE THAT MASK DESIGN PLAYS.
A SPECIFIC METHOD FOR SELECTING 'EFFICIENT' MASKS
FOR THIS MODEL, BY COMPUTER SIMULATION, IS ALSO
PRESENTED. THE MODEL IS A HIGHLY SIMPLIFIED AND
THEREFORE NOT VERY CLOSE APPROXIMATION TO THE
LEARNING MACHINE, MINOS II. IT CAN BE EXPECTED TO
DISCRIMINATE ONLY AMONG THE THREE LETTERS OF THE
ALPHABET WITH WHICH IT HAS BEEN TRAINED. THE
PAPER MODEL DISPLAYS MANY OF THE FUNDAMENTAL
FEATURES AND LOGICAL-SYSTEM DESIGN PRINCIPLES
ENCOUNTERED IN THE FULL-SCALE MACHINE, WHICH IS
CAPABLE OF PERFORMING TASKS MORE INTERESTING THAN
RECOGNIZING THREE FREE-HAND LETTERS OF THE ALPHABET.
THE MODEL EXHIBITS THE ABILITY TO DISTINGUISH
BETWEEN DIFFERENT CLASSES (DISCRIMINATION), AND
TO IGNORE VARIATIONS WITHIN A CLASS
(GENERALIZATION), WHICH ARE THE BASIC PROPERTIES
OF A PATTERN RECOGNITION SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-600 113

IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
SOME PROBLEMS IN INFORMATION SCIENCE WITH EMPHASIS
ON ADAPTATION TO USE THROUGH MAN-MACHINE
INTERACTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT., VOL. 1, 1 JAN-31 DEC
63,

APR 64 213P KOCHEN, MANFRED ;

CONTRACT: AF19 628 2752

PROJ: 5632

TASK: 563205

MONITOR: AFCRL 64 87

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*INFORMATION RETRIEVAL, PROGRAMMING
LANGUAGES), (*DATA STORAGE SYSTEMS, COMMUNICATION
THEORY), (*DATA PROCESSING SYSTEMS, COMMUNICATION
THEORY), (*PROGRAMMING LANGUAGES, PROGRAMMING
(COMPUTERS)), MEMORY, ARTIFICIAL INTELLIGENCE, BIONICS,
INDEXES, DICTIONARIES, SUBJECT INDEXING, LEARNING (U)

CONTENTS: AN ADAPTIVE SYSTEM FOR DIRECTLY
RECORDING AND RETRIEVING INFORMATION IN SIMPLE,
FORMAL, ENGLISH-LIKE SENTENCES; A DESCRIPTION OF
AN EXPERIMENTAL INFORMATION CENTER AND THE LANGUAGE
QUERY; TOTAL INFORMATION SYSTEMS IN PLANNING AND
ALERTING; WORKING SYSTEM FOR RESEARCH IN SIMULATION
OF CONCEPT LEARNING; TOWARD INFORMATION SYSTEMS
SCIENCE: INFORMATION FLOW PATTERNS AND SELF-
REGULATING MECHANISMS IN THE NATURAL SETTINGS OF
LIBRARIES; PRELIMINARY OPERATIONAL ANALYSIS OF A
COMPUTER-BASED, ON-DEMAND DOCUMENT RETRIEVAL SYSTEM
USING COORDINATE INDEXING; SYSTEMS OF ORIENTATION:
A PRELIMINARY CONCEPTUALIZATION; A MODEL FOR THE
PROCESS OF LEARNING TO COMPREHEND; METHODOLOGY FOR
RESEARCH IN CONCEPT-LEARNING; CONSTRUCTION OF A
GROWING THESAURUS BY CONVERSATIONAL INTERACTION IN A
MANMACHINE SYSTEM; AND EVALUATION OF BIAS IN THE
REMOVAL OF EDGES FROM A COMPLETELY CONNECTED GRAPH
WITH AN APPLICATION TO COMPARISON OF THESAURI.

(U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 616

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
ONE METHOD OF INFORMATION EXTRACTION FROM COMPUTER
MACHINES. (U)

APR 64 10P ELISEEV, V. K. ;
MONITOR: FTD .TT TT64 236; .64 11706

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
AVTOMATIZATSIYA I PRIBOROSTROENIE (USSR) 1963, NO. 3,
PP. 29-32.

DESCRIPTORS: (*INFORMATION RETRIEVAL, GRAPHICS),
(*PROGRAMMING COMPUTERS, CONTROL SEQUENCES), DIGITAL
COMPUTERS, COMPILERS, BINARY ARITHMETIC, CATHODE RAY
TUBE SCREENS, DISPLAY SYSTEMS, USSR (U)

THE FOLLOWING METHOD IS USED TO OBTAIN SYMBOL
REPRESENTATIONS. THE SYMBOL IMAGE WHICH MUST BE
CODED IS WRITTEN IN A SPECIAL STANDARD FRAME WHICH IS
BROKEN DOWN INTO SQUARES (M SQUARES ALONG THE
HORIZONTAL AND N ALONG THE VERTICAL). IF THE WHITE
SQUARES BY ZERO AND THE BLACK SQUARES ARE DESIGNATED
BY ONE, THE SYMBOL MAY BE WRITTEN IN THE FORM OF A
BINARY CODE HAVING A LENGTH OF M X N DIGITS. FOR
DEFINITENESS IT IS AGREED TO WRITE ROWS FROM LEFT TO
RIGHT AND COLUMNS BOTTOM TO TOP. THE FOLLOWING
FRAME DIMENSIONS ARE USED IN THE PROGRAM: FIVE
ELEMENTS PER ROW AND SEVEN ELEMENTS PER COLUMN.
THUS EACH SYMBOL MAY BE CODED IN THE FORM OF A 40-
DIGIT BINARY CODE WHICH IS PLACED IN ONE CELL OF THE
'KIEV' MEMORY. TO DISPLAY THE SYMBOL AN
OPERATION SIMILAR TO THAT OF CODING BUT IN REVERSE
ORDER IS CARRIED OUT. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-600 697

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
DELAY OF SELF-TESTING IN THREE TYPES OF PROGRAMED
TEXT. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 8,
MAY 64 21P HERSHBERGER, WAYNE A. ; TERRY,
DONALD F. ;
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING, TEST METHODS), (*READING,
STUDENTS), (*PROGRAMMING (COMPUTERS), TEACHING
MACHINES), CYBERNETICS, EDUCATION, REACTION
(PSYCHOLOGY), CONDITIONED REFLEX, EFFECTIVENESS (U)

THIS STUDY COMPARED THREE INTERVALS OF DELAY
(CORRESPONDING TO THE TIMES REQUIRED TO REA
SEVERAL WORDS, PARAGRAPHS, OR PAGES) BETWEEN
INITIAL READING AND SUBSEQUENT SELF-TESTING FOR
RECALL, IN THREE TYPES OF PROGRAMED TEXTS. ONE
TYPE OF TEXT PERMITTED THE SUBJECT TO REREAD BEFORE
ANSWERING (PREVIEW), ANOTHER AFTER ANSWERING
(REVIEW), AND A THIRD TYPE EXPOSED THE CORRECT
ANSWER AFTER THE SUBJECT RESPONDED
(CONFIRMATION). THREE MATCHED GROUPS OF
PRETESTED SIXTH GRADERS, 55 IN ALL, READ THE THREE
TYPES OF PROGRAMS AND TOOK A POSTTEST, BOTH
VARIABLES, PROGRAM TYPE AND DELAY INTERVAL, AFFECTED
PROGRAM ERRORS BUT NEITHER AFFECTED GAIN SCORES.
HOWEVER, ALL DELAY INTERVALS OF SELF-TESTING WERE
SUPERIOR TO NO SELF-TESTING. RELATED RESEARCH WAS
REVIEWED FROM A CYBERNETIC VIEWPOINT. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 075

RAND CORP SANTA MONICA CALIF

COMPUTER SIMULATION OF HUMAN BEHAVIOR (U)

MAY 64 15P

FEIGENBAUM, E. A. ;

REPT. NO. 2905

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*BEHAVIOR, SIMULATION), *DIGITAL
COMPUTERS, HUMANS, LEARNING, COMPUTER LOGIC, PROGRAMMING
LANGUAGES, PROGRAMMING (COMPUTERS), MODELS
(SIMULATIONS), VERBAL BEHAVIOR (U)

BASED ON A SURVEY OF THE LITERATURE, THE DIGITAL
COMPUTER AS A SIMULATOR OF HUMAN BEHAVIOR IS
DISCUSSED UNDER THE FOLLOWING TOPICS: (1)
COMPUTERS AS INFORMATION PROCESSORS, (2)
HUMAN INFORMATION PROCESSING, (3) INFORMATION
PROCESSING THEORY AND COMPUTER SIMULATION, (4)
COMPUTER SIMULATION WITHIN EXISTING FRAMEWORKS,
(5) NEW INFORMATION PROCESSING MODELS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 210

PRINCETON UNIV N J

THE IMPORTANCE OF PROBLEM HETEROGENEITY TO PROGRAMMED
LEARNING. (U)

MAY 64 91P TRAUB, ROSS E. ;

CONTRACT: NONR-1858(15), NONR-2214(00)

PROJ: NR150 088AND , NR151 174

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*TEACHING MACHINES, PSYCHOMETRICS),
(*PROGRAMMING (COMPUTERS), LEARNING), (*LEARNING,
PSYCHOMETRICS), ACHIEVEMENT TESTS, REACTION
(PSYCHOLOGY), PERFORMANCE (HUMAN), DECISION MAKING,
HUMAN ENGINEERING (U)

THE STUDY CONCERNS THE DETERMINATION OF THE KINDS
OF VARIABLES WHICH ARE IMPORTANT IN PROGRAMMING THE
TASK HIERARCHY FOR EFFICIENT LEARNING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 681

GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE

EVALUATION OF AN AUTO-INSTRUCTIONAL PROGRAM ON THE
FIRST WEEK OF A BASIC ELECTRONICS COURSE, (U)

DESCRIPTIVE NOTE: RESEARCH MEMO.

MAR 64 84P MELCHING, WILLIAM H. ;

CHRISTENSEN, HAROLD E. ; KUBALA, ALBERT L. ;

CONTRACT: DA44 188AR02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING, PERFORMANCE TESTS),
(*EDUCATION, ELECTRONICS), PERFORMANCE (HUMAN),
STUDENTS, AIR FORCE TRAINING (U)

IDENTIFIERS: PROGRAMMED TEACHING, TEXTSTRUCT
PROJECT (U)

AN AUTO-INSTRUCTIONAL PROGRAM COVERING THE CONTENT
OF THE FIRST WEEK (27.5 HOURS) OF BASIC
ELECTRONICS AS TAUGHT AT THE AIR DEFENSE SCHOOL
WAS PREPARED UNDER SUBTASK TEXTSTRUCT II. TWO
SEPARATE EVALUATIONS OF THE PROGRAM WERE UNDERTAKEN
BY ADMINISTERING IT TO 39 STUDENTS REGULARLY
SCHEDULED TO TAKE BASIC ELECTRONICS TRAINING. IT
WAS CONCLUDED THAT COMPLETE SELF-PACING YIELDED
HIGHER PERFORMANCE THAN LIMITED SELF-PACING, BUT
ADMINISTRATIVE AND PROCEDURAL DIFFERENCES IN THE TWO
STUDIES TENDED TO CONFOUND THE RESULTS. FINALLY, IT
WAS NOTED THAT LOW APTITUDE STUDENTS DID NOT ACHIEVE
HIGH LEVELS OF PERFORMANCE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-601 849

STANFORD RESEARCH INST MENLO PARK CALIF
LINEAR SEPARABILITY OF SIGNAL SPACE AS A BASIS FOR
ADAPTIVE MECHANISMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 64 78p NILSSON, N. J. 1

CONTRACT: AF30 602 2943

PROJ: 5581

TASK: 558104

MONITOR: RADC

TDR64 145

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PATTERN RECOGNITION, MACHINES);
INPUT/OUTPUT DEVICES, ARTIFICIAL INTELLIGENCE, COMPUTER
LOGIC, BIONICS, TRAINING, THEORY (U)
IDENTIFIERS: LEARNING MACHINES, PERCEPTION (U)

THE REPORT REVIEWS THE RESEARCH RESULTS OF THE
PROGRAM ENTITLED LINEAR SEPARABILITY OF SIGNAL
SPACE AS A BASIS FOR ADAPTIVE MECHANISMS.
THE MAJOR CONTRIBUTIONS OF THIS PROGRAM WERE TWO
FOLD: (1) THE NOTION OF DISCRIMINANT FUNCTIONS
WAS EMPLOYED IN CONSTRUCTING A FRAMEWORK FOR
ORGANIZING PAST AND PRESENT KNOWLEDGE INTO A BASIS
FOR FURTHER THEORETICAL RESEARCH ON TRAINABLE PATTERN
CLASSIFYING MACHINES, AND (2) SOME SIGNIFICANT
NEW RESULTS WERE OBTAINED ON TRAINABLE PATTERN
CLASSIFYING MACHINES. THE SPECIFIC RESEARCH
EFFORTS REPORTED FALL INTO THE FOLLOWING CATEGORIES:
(1) INVESTIGATION OF THE PROPERTIES OF VARIOUS
FAMILIES OF DISCRIMINANT FUNCTIONS TO BE USED BY A
PATTERN DICHOTOMIZER; (2) INVESTIGATION OF
VARIOUS NETWORK STRUCTURES FOR THE IMPLEMENTATION OF
USEFUL FAMILIES OF DISCRIMINANT FUNCTIONS; AND
(3) INVESTIGATION OF VARIOUS TRAINING RULES TO BE
USED IN SELECTING THE APPROPRIATE DISCRIMINANT
FUNCTION FOR A PATTERN DICHOTOMIZER. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-602 042

BIO-DYNAMICS INC CAMBRIDGE MASS
DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED
ON-THE-JOB TRAINING, II. DESIGN OF SELF-
INSTRUCTIONAL FEATURES. (U)

JAN 64 34P SHERIDAN, THOMAS B. IDUGGAR,

BENJAMIN C. HAYER, SYLVIA R. I

CONTRACT: AF19 628 455

PROJ: 7682

TASK: 768204

MONITOR: ESD TOR64 234

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+COMMAND AND CONTROL SYSTEMS, TRAINING
DEVICES); (+TRAINING DEVICES, TEACHING MACHINES),
BEHAVIOR, HUMAN ENGINEERING, CODING, PROGRAMMING
(COMPUTERS), DECISION MAKING, TRAINING, LEARNING,
EDUCATION, COMPUTERS, LANGUAGE, AUTOMATION, MODELS
(SIMULATIONS), DESIGN (U)
IDENTIFIERS: SAGE (U)

THE REPORT IS CONCERNED WITH HUMAN ENGINEERING
FACTORS IN THE DESIGN OF INFORMATION SYSTEMS. IN
PARTICULAR IT IS ADDRESSED TO THE DESIGN OF SELF-
INSTRUCTIONAL FEATURES FOR THESE SYSTEMS. IT
DESCRIBES THEORIES, METHODOLOGY, AND DESIGN
PRINCIPLES FOR IMPLEMENTATION OF SELF-INSTRUCTIONAL
FEATURES. THE DESIGN PRINCIPLES WERE INDUCED FROM
THE EXPLORATORY RESEARCH ON LABORATORY MODELS OF
INFORMATION SYSTEMS WHICH IS REPORTED IN VOLUME I
OF THIS SERIES (AD-602 041), FROM STUDIES ON
CURRENT INFORMATION SYSTEMS, AND FROM A LITERATURE
REVIEW. THE OPERATIONAL CONCEPTS UNDERLYING THE
STUDY ARE STATED, AND AN EQUIPMENT DESIGN PHILOSOPHY
IS PROPOSED TO COMPLEMENT THIS OPERATIONAL CONCEPT.
(AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-602 056

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

THEORY AND RESEARCH IN PROGRAMMED INSTRUCTION. (U)
JUN 64 15P ABMA, JOHN S. I

PROJ: 1710

TASK: 171007

MONITOR: AMRL

P74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE; PRESENTED TO THE ANNUAL CONFERENCE
(15TH) OF THE AMERICAN INSTITUTE OF INDUSTRIAL
ENGINEERS AT PHILADELPHIA, PA., 13 MAY 1965.

DESCRIPTORS: (TEACHING MACHINES, EFFECTIVENESS),
(TRAINING, THEORY), (PROGRAMMING (COMPUTERS),
EDUCATION), LEARNING, LINEAR PROGRAMMING, REACTION
(PSYCHOLOGY), AUTOMATION (U)

PROGRAMMED INSTRUCTION MAY BE IMPLEMENTED WITHIN A
SYSTEMS APPROACH TO EDUCATION. THE SYSTEM PROVIDES
FOR FEEDBACK LOOPS WHICH PERMIT MODIFICATION OF
TRAINING MATERIALS ON THE BASIS OF KNOWN
EFFECTIVENESS. MEASUREMENT IS A CRUCIAL
CONSIDERATION IN ASSURING THAT A GIVEN COURSE OR
METHOD IS EFFECTIVE. THEORIES OF LEARNING AND
PROGRAMMING SUGGEST MANY WAYS TO PROCEED. ONLY
APPLIED EVALUATIVE EXPERIMENTATION CAN DETERMINE THE
USEFULNESS OF A GIVEN APPROACH. ADJUNCTIVE,
INTRINSIC AND LINEAR PROGRAMMING ARE DISCUSSED.
EXPERIMENTS CALL INTO QUESTION SOME CURRENT
APPLICATIONS OF FEATURES BASED UPON THEORY, SUCH AS
OVERT RESPONDING AND REINFORCEMENT, IT IS POSSIBLE
TO AUTOMATE THE VARIOUS APPROACHES TO PROGRAMMED
INSTRUCTION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-602 079

BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
FURTHER EXPERIMENTS ON COMPUTER-AIDED LEARNING OF
SOUND IDENTIFICATION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.

APR 64 53P SWETS, JOHN A. HARRIS,
JUDITH R. MCCELROY, LINDA S. RUDLOE, HARRY I

CONTRACT: N61339 789

MONITOR: NAVTRADEVEN

789 2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, DIGITAL COMPUTERS),
(*LEARNING, PERCEPTION (PSYCHOLOGY)), SOUND, PROGRAMMING
(COMPUTERS), PERFORMANCE (HUMAN), EDUCATION,
EXPERIMENTAL DATA, LABORATORY EQUIPMENT, COMMUNICATION
THEORY (U)

IN EXPERIMENTS REPORTED HERE THE SUBJECT WAS ABLE
TO CHOOSE FREELY, AT ANY TIME, AMONG THE VARIOUS
INSTRUCTIONAL PROCEDURES, AND TO REGULATE THE
INTRODUCTION OF NEW MATERIALS. ONE OF THESE
EXPERIMENTS EMPLOYED AN ELECTRIC TYPEWRITER AS THE
MEANS OF COMMUNICATION BETWEEN SUBJECT AND COMPUTER;
THE OTHER EMPLOYED AN OSCILLOSCOPE DISPLAY AND LIGHT
PEN IN AN ATTEMPT TO PROVIDE A MORE EFFECTIVE
MECHANISM FOR RESPONSE AND FEEDBACK OF RESULTS.
GRANTING TO THE SUBJECT CONTROL OF THE TRAINING
PROCEDURE LED TO NO BETTER FINAL PERFORMANCE THAN
THAT OBSERVED WHEN THE EXPERIMENTER DETERMINED THE
COURSE OF THE LESSON, AND THE SCOPE-AND-LIGHT-PEN
DEVICE LED TO NO BETTER PERFORMANCE THAN THE
TYPEWRITER. FURTHER ANALYSIS OF THE RESULTS
PROVIDED DETAILED SUPPORT OF THE EARLIER
CONCLUSIONS: FOR EXAMPLE, SUCCESS WAS POSITIVELY
CORRELATED WITH THE PROPORTION OF TIME SPENT ON
SIMPLE EXPOSURE TO THE SOUND/LABEL PAIRS, AND
NEGATIVELY CORRELATED WITH THE PROPORTION OF TIME
SPENT IN ACTIVE RESPONDING, RECEIVING FEEDBACK, AND
MAKING SECOND TRIES. THREE VARIABLES RELATED TO
STREAMLINING OF THE TASK AND TEMPORAL CONTIGUITY OF
SOUND AND LABEL ACCOUNT FOR NEARLY 100% OF THE
VARIANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-602 318

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE QUESTION OF SELF-TEACHING IN THE PERCEPTION, (U)

MAY 64 20P GLUSHKOV, V. M. 1

MONITOR: FTD .TT TT64 299. 64 11853

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
ZHURNAL VYCHISLITEL'NOI MATEMATIKI I MATEMATICHESKOI
FIZIKI (USSR) 1962. V. 2. NO. 6. P. 1102-1110.

DESCRIPTORS: (PATTERN RECOGNITION, MACHINES); BIONICS,
ARTIFICIAL INTELLIGENCE, INPUT-OUTPUT DEVICES, USSR,
FEEDBACK, MATHEMATICAL ANALYSIS, PROBABILITY, CIRCUIT (U)
IDENTIFIERS: PERCEPTRON, LEARNING MACHINES (U)

THE ARTICLE DEALS WITH CERTAIN PROBLEMS ASSOCIATED
WITH THE BEHAVIOR OF DISCRETE ALPHA-PERCEPTRONS IN
THE SELF-TEACHING REGIME. IN THIS CASE THE TEACHER
IS ABSENT AND THE PROCESSES OF SELF-ORGANIZATION
WHICH LEAD TO AN ALTERATION IN IMAGE CLASSIFICATION
CARRIED OUT BY THE PERCEPTRON ARE DETERMINED BY THE
INTRODUCTION OF POSITIVE FEED-BACK IN THE PERCEPTRON
CIRCUIT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-602 660

MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH
CENTER

A GENERALIZED TE)SHI MACHIN DECISION STRUCTURE WITH
APPLICATION TO SPEED READING. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 7,
MAY 64 72P STROLLO, THEODORE R. ;
CONTRACT: AF19 628 2407

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS), OPERATIONS
RESEARCH, PROGRAMMING (COMPUTERS), EQUATIONS,
STATISTICS, EDUCATION, LEARNING, TACHISTOSCOPIES,
READING, DECISION MAKING (U)
IDENTIFIERS: SPEED READING (U)

A RELATIVELY NEW TYPE OF AUTOMATED INSTRUCTION
CALLED THE 'COMPUTER-DIRECTED' TEACHING MACHINE IS
DISCUSSED IN THIS THESIS. TYPICAL PRESENT-DAY
TEACHING MACHINES EITHER GIVE EVERY STUDENT THE SAME
INSTRUCTION MATERIAL OR CHOOSE WHAT MATERIAL THE
STUDENT RECEIVES ON THE BASIS OF HIS ANSWER TO THE
LAST QUESTION. THE COMPUTER-DIRECTED MACHINE
CHOOSES INSTRUCTION MATERIAL BY MAKING A STATISTICAL
EVALUATION OF THE STUDENT'S TOTAL BEHAVIOR IN
COMPARISON WITH OTHER STUDENTS' TOTAL BEHAVIORS.
THIS MACHINE'S STATISTICS ARE ACTUALLY CHANGED AS
NEW STUDENTS TAKE THE COURSE. SUCH A TEACHING
MACHINE CAN PERFORM VERY MUCH LIKE A HUMAN TUTOR WHO
ADJUSTS HIS PRESENTATION TO FIT THE INDIVIDUAL
STUDENT'S CAPABILITIES AND WHO IMPROVES HIS TEACHING
TECHNIQUE WITH EACH STUDENT. IN THIS PAPER A
TECHNIQUE IS SUGGESTED FOR COMPARING TEACHING
MACHINES. THE MACHINE'S TUTORIAL FUNCTIONS WOULD
BE FITTED TO A VERY GENERAL MODEL OF THE TUTORIAL
TEACHING CYCLE. THIS ALLOWS THE VARIOUS AUTOMATED
INSTRUCTION DEVICES TO BE DISCUSSED IN TERMS OF A
COMMON MODEL. AN APPLICATION OF THE COMPUTER-
DIRECTED MACHINE WAS MADE TO A SPEED READING COURSE.
PRELIMINARY EXPERIMENTS WITH THIS COURSE INDICATE
THAT THE COMPUTER-DIRECTED MACHINE CAN PERFORM LIKE A
HUMAN TUTOR. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /DHK08

AD-602 490

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
HERALD OF THE SCHOOLS OF HIGHER EDUCATION, 1964, VOL.
22, NO. 1, (U)

MAY 64 218P

MONITOR: FTD ,TT TT64, 1361 ,64 71122

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
VESTNIK VYSSHEI SHKOLY (USSR) 1964 V. 22 NO. 1, P.
1-96.

DESCRIPTORS: (EDUCATION, USSR), UNIVERSITIES,
COMMUNISTS, AGRICULTURE, FORESTRY, SOCIAL SCIENCES,
CHEMISTRY, ENGINEERING, CONSTRUCTION, ECONOMICS,
ELECTRONICS, LANGUAGE, COMMUNISM, BIONICS, CYBERNETICS,
TEACHING MACHINES, SCIENTIFIC PERSONNEL, HISTORY,
REPORTS (U)

REPORTS BY SOVIET UNIVERSITY PROFESSORS ARE
COMPILED. THE CURRICULA AND INSTRUCTION METHODS OF
HIGHER EDUCATION IN THE USSR ARE DISCUSSED IN
RELATION TO COMMUNIST PHILOSOPHY. (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-604 451

RAND CORP SANTA MONICA CALIF

SECONDARY SCHOOLS AND COMPUTING,

NOV 61

SP

GRUENBERGER, FRED I

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+EDUCATION, COMPUTERS), (+COMPUTERS, EDUCATION), (+PROGRAMMING (COMPUTERS), EDUCATION), CODING, LEARNING, COMPUTER OPERATORS, COMPUTER PERSONNEL, TRAINING

(U)

THE INTRODUCTION OF COMPUTING TECHNOLOGY AND THE COMPUTERS THEMSELVES INTO OUR SECONDARY SCHOOLS STANDS A GOOD CHANCE OF BEING ORDERLY. (1) COURSES WILL BE GIVEN UNDER THE SPONSORSHIP OF THE MATHEMATICS OR SCIENCE DEPARTMENTS. (2) SUITABLE TEXTBOOKS WILL BE AVAILABLE. (3) THE INSTRUCTORS WILL BE TRAINED. (4) THE MACHINES USED, THOUGH PROBABLY OLD, WILL BE MASSPRODUCED, WITH A WEALTH OF SOFTWARE BEHIND THEM. IN ADDITION, EACH TEACHER CAN SEEK EXPERT HELP, IF NEEDED, FROM LOCAL INDUSTRY. THE REAL WAVE OF SUCH COURSES WILL PROBABLY NOT COME UNTIL 1963 OR LATER. FOR ONE THING, AN INTRODUCTION TO COMPUTING MIGHT PROPERLY BELONG AT THE SECONDARY SCHOOL LEVEL-THERE SEEMS TO BE A STRONG ANALOGY TO THE LEARNING OF A FOREIGN LANGUAGE AND IT HAS BECOME OBVIOUS THAT THE LATTER SUBJECT IS BEST TAUGHT TO THE YOUNG. FOR ANOTHER THING, SINCE COMPUTING SKILLS CUT ACROSS EVERY DISCIPLINE, WE CAN REASON THAT WE OWE IT TO THE COLLEGE-BOUND STUDENT TO PREPARE HIM FOR INTELLIGENT USE OF THIS TOOL PRIOR TO HIS COLLEGE FRESHMAN YEAR.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ONK08

AD-604 529

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF

DISTINGUISHING ERRORS OF MEMORY FROM ERRORS OF
UNDERSTANDING BY MEANS OF SELF-INSTRUCTIONAL
TESTS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 9,

AUG 64 47p HERSHBERGER, WAYNE A. ;

REPT. NO. C28-8/64-TR

CONTRACT: NONR3077 00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (TEACHING MACHINES, LEARNING), (MEMORY,
TEACHING MACHINES), PSYCHOMETRICS, RECALL, RETENTION,
FEEDBACK, TEST METHODS, EDUCATION, STUDENTS, TRAINING
DEVICES, ANALYSIS OF VARIANCE

(U)

THIS STUDY COMPARED TWO TYPES OF SELF-INSTRUCTIONAL
TESTS USED AS ADJUNCTS TO AN EXPOSITORY TEXT. ONE
TYPE OF TEST (PURE SELF-TEST) INCORPORATED
TWO TYPES OF ITEMS. ONE ASSESSING AND REMEDYING
ERRORS OF MEMORY AND THE OTHER ASSESSING AND
REMEDYING ERRORS OF UNDERSTANDING. THE OTHER TYPE
OF SELF-INSTRUCTIONAL TEST (MIXED SELF-TEST)
WAS COMPOSED OF A SINGLE TYPE OF COMPLEX QUESTION
REQUIRING ANSWERS INVOLVING MEMORY PLUS
UNDERSTANDING. REMEDIAL FEEDBACK WAS LIKEWISE MIXED.
FORTY-EIGHT HIGH SCHOOL SOPHOMORES WERE DIVIDED
INTO THREE GROUPS: ONE GROUP STUDIED THE EXPOSITORY
TEXT ALONE (BASIC TEXT GROUP), ONE STUDIED
THE TEXT PLUS THE PURE SELF-TEST, AND ONE
STUDIED THE TEXT PLUS THE MIXED SELF-TEST.
FIVE DAYS LATER, EACH GROUP WAS GIVEN A CRITERION
TEST COMPOSED OF THE TWO SELF TESTS SANS ANSWERS.
THERE WERE NO SIGNIFICANT DIFFERENCES AMONG GROUPS
ON TOTAL CRITERION TEST SCORES, BUT THE PURE
SELF-TEST GROUP DID BEST ON THE PURE ITEMS AND
THE MIXED SELF-TEST GROUP DID BEST ON THE
MIXED ITEMS. THE BASIC TEXT GROUP DID WELL
ON THE PURE RECALL ITEMS, FAIR ON THE MIXED, RECALL-
AND-MEMORY ITEMS BUT POORLY ON THE PURE UNDERSTANDING
ITEMS. THE GENERALITY OF THESE FINDINGS IS LIMITED
BY THE FACT THAT NONE OF THE THREE LESSON FORMATS
WERE HIGHLY EFFECTIVE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-604 605

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
TEACHING MACHINES AND COMPUTER-BASED SYSTEMS, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 1 (REVISED
DRAFT),

MAY 64 66P STOLUROW, LAWRENCE M.; DAVIS,
DANIEL I
CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS), (*TRAINING
DEVICES, TEACHING MACHINES), FEEDBACK, BEHAVIOR,
REACTION (PSYCHOLOGY), PROGRAMMING (COMPUTERS), DYNAMIC
PROGRAMMING, LEARNING, EFFECTIVENESS, DESIGN, ANALYSIS,
EDUCATION (U)

THE PURPOSE OF THIS PAPER IS TO DEVELOP A GENERAL
MODEL OF THE TEACHING PROCESS AS ACCOMPLISHED BY AN
ADAPTIVE TEACHING MACHINE SYSTEM, NO ATTEMPT IS
MADE TO COMPLETELY INVENTORY EXISTING EQUIPMENT OR TO
DESCRIBE PARTICULAR MACHINES IN GREAT DETAIL. (U)

UNCLASSIFIED

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 167

ADAPTRONICS INC MCLEAN VA
RESEARCH ON SYSTEMS DESIGN METHODOLOGY, VOLUME 1:
LEARNING AUTOMATA DESIGN METHODOLOGY, (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT, FOR APR 63-APR
64,

JUN 64 10P GILSTRAP, LEWEY O., JR.;
BARRON, ROGER L.;
CONTRACT: NONR 4110 00 , AF33 657 10734
PROJ: NR276 008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT, IS IN THREE VOLUMES.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, SYSTEMS
ENGINEERING), (*SYSTEMS ENGINEERING, ARTIFICIAL
INTELLIGENCE), (*CYBERNETICS, SYSTEMS ENGINEERING),
ADAPTIVE CONTROL SYSTEMS, LEARNING, AUTOMATA, BIONICS,
COMPUTERS, MATHEMATICAL MODELS, OPERATIONS RESEARCH (U)
IDENTIFIERS: LEARNING MACHINES (U)

THIS REPORT VOLUME INTRODUCES A THREE-VOLUME SERIES
SUMMARIZING RESEARCH ON SYSTEMS DESIGN METHODOLOGY:
THE APPROACH IN THIS WORK HAS BEEN TO EMPHASIZE
DETAILED INVESTIGATIONS IN THREE AREAS WITHIN THE
GENERAL FRAMEWORK OF ADAPTIVE SYSTEMS. THIS
VOLUME THEN PROCEEDS TO DISCUSS KEY CONCEPTS IN THE
DESIGN METHODOLOGY OF LEARNING AUTOMATA, WITH
CONSIDERATION GIVEN TO THE DEVELOPMENT OF ADAPTIVE
SYSTEMS AND THE USE OF SUCH SYSTEMS AS MACHINE AIDS
TO DESIGN. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 267

IBM WATSON RESEARCH CENTER YORKTOWN HEIGHTS N Y
COMPUTER PROGRAMMING TECHNIQUES FOR (U)
DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 1.

AUG 64 1v

CONTRACT: AF30 602 3303

PROJ: 4594

MONITOR: RADC , TDR64 233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMING (COMPUTERS), INFORMATION
RETRIEVAL), (*INFORMATION RETRIEVAL, DATA PROCESSING
SYSTEMS), DIGITAL COMPUTERS, PROGRAMMING LANGUAGES,
DISPLAY SYSTEMS, STATISTICAL DATA, STATISTICAL ANALYSIS,
AUTOMATION (U)

CONTENTS: STATISTICAL PREDICTION,
DISCRIMINATION, AND CLASSIFICATION TECHNIQUE;
INTEGRATED COMPUTER-ORIENTED INFORMATION RETRIEVAL
TECHNIQUES; MULTI-PROGRAMMING TECHNIQUES FOR
INTELLIGENCE INFORMATION PROCESSING; COMPUTER CONSOLE
INPUT AND DISPLAY (TEXTUAL AND GRAPHIC);
AUTOMATED PROGRAM DEBUGGING TECHNIQUES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 335

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XXIII, INSTRUCTOR'S
MANUAL.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 9P

CONTRACT: AF19 628 2935

PROJ: 7482

TASK: 748204

MONITOR: ESD ,

TDR64 443 V23

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 353

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE

(U)

OTC QUERY LANGUAGE, VOLUME XXIII, INSTRUCTOR'S
MANUAL.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 336

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XI, WRITING QUERY
LANGUAGE STATEMENTS.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 73p

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR64 443 V11

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 339.

DESCRIPTORS: (+TRAINING DEVICES, INSTRUCTION MANUALS),
(+PROGRAMMING LANGUAGES, TRAINING DEVICES),
(+INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XI, WRITING QUERY
LANGUAGE STATEMENTS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 337

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE, VOLUME XII. SIMPLE SUMS WITH
THE AIR UNIT TABLES. (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 72P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD .

TDR64 443 V12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 336.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XII, SIMPLE SUMS WITH
THE AIR UNIT TABLES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 338

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME VII, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS, (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 1v

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD TOR64 443 V7

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 354.

DESCRIPTORS: (1) TRAINING DEVICES, INSTRUCTIONS MANUALS),
(1) PROGRAMMING LANGUAGES, TRAINING DEVICES),
(1) INFORMATION RETRIEVAL, AIR FORCE OPERATIONS, TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS),
LANGUAGES (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME VII, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-605 339

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME X, WRITING QUERY
LANGUAGE STATEMENTS.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE, /

JUN 64 IV

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD TOR64 443 V10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 342.

DESCRIPTORS: (+TRAINING DEVICES, INSTRUCTION MANUALS),
(+PROGRAMMING LANGUAGES, TRAINING DEVICES),
(+INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME X, WRITING QUERY
LANGUAGE STATEMENTS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 340

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE, VOLUME IV, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 63p

CONTRACT: AF19 62A 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-685 355.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES), (•TEACHING
MACHINES, INSTRUCTION MANUALS), (•INFORMATION RETRIEVAL,
AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING
(COMPUTERS), LANGUAGES (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME IV, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-605 341

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME VIII, WRITING QUERY
LANGUAGE STATEMENTS,

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE. (U)

JUN 64 8p

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD ,

TDR64 443 V8

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 336.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES),
(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME VIII, WRITING QUERY
LANGUAGE STATEMENTS,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 342

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME IX. WRITING QUERY
LANGUAGE STATEMENTS.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 79p

CONTRACT: AF19 628 2935

TASK: 768204

MONITOR: ESD , TDR644 443 344 4 443 V9

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 341.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE

(U)

OTC QUERY LANGUAGE. VOLUME IX. WRITING QUERY
LANGUAGE STATEMENTS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-605 343

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XX, TEST ANSWER
KEY,

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,
JUN 64 10P

PROJ: 7682

TASK: 767768204

MONITOR: ESD .

TDRRR64 443 V20

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 352.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XX, TEST ANSWER KEY.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 344

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME I, PREPROGRAM HOW TO USE
THE QUERY LANGUAGE SELF-INSTRUCTIONAL COURSE. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 1V

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING
MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL,
AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING
(COMPUTERS), TEXTBOOKS, LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

THIS SELF-INSTRUCTIONAL COURSE TEACHES THE QUERY
LANGUAGE OF SYSTEM 473L FOR THE OPERATIONAL
TEST CAPABILITY PHASE (OTC). THE COURSE
CONSISTS OF TWENTY-THREE VOLUMES. IT INCLUDES:
VOLUME I: PREPROGRAM - INSTRUCTIONS ON HOW TO
USE THE QUERY LANGUAGE SELF-INSTRUCTIONAL
COURSE; VOLUMES II - XVI: PROGRAMMED
INSTRUCTION ON THE OTC QUERY LANGUAGE; VOLUME
XVII: EXERCISE WORKBOOK; VOLUME XIX:
PROFICIENCY TESTS; VOLUME XX: TEST ANSWER
KEY; VOLUME XXI: TIME RECORD; VOLUME
XXII: REFERENCE MANUAL; VOLUME XXIII:
INSTRUCTOR'S MANUAL. THE PROGRAMMED-INSTRUCTION
FORMAT OF THIS COURSE PERMITS THE STUDENT TO LEARN AT
HIS OWN PACE WITHOUT THE AID OF AN INSTRUCTOR.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 345

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE, VOLUME XXI, TIME RECORD.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 1P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD ,

TDR64 443 V21

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 343.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),

(*PROGRAMMING LANGUAGES, TRAINING DEVICES),

(*INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING

MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY

LANGUAGE

(U)

OTC QUERY LANGUAGE, VOLUME XXI, TIME RECORD.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-605 346

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XVI. ADDITIONAL PROCESS
DIRECTORS AND A REVIEW OF RULES. (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 65P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V16

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 349.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES; TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS); TEACHING
MACHINES, EDUCATION; PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XVI. ADDITIONAL PROCESS
DIRECTORS AND A REVIEW OF RULES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /OMK08

AD-605 347

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE, VOLUME II, AN INTRODUCTION TO
THE 473L SYSTEM. (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 65P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR64 443 V2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 344.

DESCRIPTORS: (*TRAINING DEVICES, INSTRUCTION MANUALS),
(*PROGRAMMING LANGUAGES, TRAINING DEVICES), (*TEACHING
MACHINES, INSTRUCTION MANUALS), (*INFORMATION RETRIEVAL,
AIR FORCE OPERATIONS), PROGRAMMING (COMPUTERS), DECISION
MAKING, EDUCATION, LANGUAGES (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME II, AN INTRODUCTION TO
THE 473L SYSTEM.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 348

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE. VOLUME V. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,

JUN 64 4p

CONTRACT: AF19 628 2935

PROJ: 7682

MONITOR: ESD,

TDR64 443 V5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 340.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUAL NOION
MANUALS), (•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATION), TEACHING
MACHINES, EDUCATION, LANGUAGES, PROGRAMMING (COMPUTER(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME V. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 349

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XV, SORTING AND
SPECIFYING TITLES.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 72P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD .

TDR64 443 V25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 356.

DESCRIPTORS: (+TRAINING DEVICES, INSTRUCTION MANUALS),
(+PROGRAMMING LANGUAGES, TRAINING DEVICES),
(+INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE

(U)

OTC QUERY LANGUAGE, VOLUME XV, SORTING AND
SPECIFYING TITLES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-605 350

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XVII, EXHIBITS,
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

(U)

JUN 64 8p

CONTRACT: AF19 62R 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD .

TDR64 443 V17

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 346.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XVII, EXHIBITS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 351

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XVIII, EXERCISE
WORKBOOK, (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 1V

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD ,

TDR64 443 V18

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 350.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XVIII, EXERCISE
WORKBOOK,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 352

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XIX. PROFICIENCY
TESTS.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,

JUN 64 1v

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V19

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 351.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME XIX. PROFICIENCY TESTS,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-605 353

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME XXII. REFERENCE
MANUAL.

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

(U)

JUN 64 IV

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TOR64 443 V22

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 345.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE

(U)

OTC QUERY LANGUAGE. VOLUME XXII. REFERENCE MANUAL.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 354

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE. VOLUME VI. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS. (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 1v

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V6

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 348.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE. VOLUME VI. THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 355

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME III, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS, (U)
DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,

JUN 64 1V

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 347.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES), (•TEACHING
MACHINES, INSTRUCTION MANUALS), (•INFORMATION RETRIEVAL,
AIR FORCE OPERATIONS), EDUCATION, PROGRAMMING
(COMPUTERS), LANGUAGES (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME III, THE OPERATION AND
CAPABILITY OF THE COMPUTER RETRIEVAL PROGRAMS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 356

AMERICAN INST FOR RESEARCH PITTSBURGH PA
OTC QUERY LANGUAGE, VOLUME XIV. SUMS WITH THE TMS
AND TM SUMMARY TABLES.

(U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE.

JUN 64 8p

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR64 443 V14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 357.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(•PROGRAMMING LANGUAGES, TRAINING DEVICES),
(•INFORMATION RETRIEVAL, AIR FORCE OPERATIONS), TEACHING
MACHINES, EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGE(U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE

(U)

OTC QUERY LANGUAGE, VOLUME XIV. SUMS WITH THE TMS
AND TM SUMMARY TABLES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 357

AMERICAN INST FOR RESEARCH PITTSBURGH PA

OTC QUERY LANGUAGE, VOLUME XIII, COMPLEX SUMS WITH
THE AIR UNIT TABLES, (U)

DESCRIPTIVE NOTE: SELF-INSTRUCTIONAL COURSE,

JUN 64 64P

CONTRACT: AF19 628 2935

PROJ: 7682

TASK: 768204

MONITOR: ESD TDR64 443 V13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-605 337.

DESCRIPTORS: (•TRAINING DEVICES, INSTRUCTION MANUALS),
(PROGRAMMING LANGUAGES, TRAINING DEVICES), (•INFORMATION
RETRIEVAL, AIR FORCE OPERATIONS), TEACHING MACHINES,
EDUCATION, PROGRAMMING (COMPUTERS), LANGUAGES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, QUERY
LANGUAGE (U)

OTC QUERY LANGUAGE, VOLUME XIII, COMPLEX SUMS WITH
THE AIR UNIT TABLES,

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-605 815

BELFOUR ENGINEERING CO SUTTONS BAY MICH

THE MECHANICAL PROPERTIES DATA CENTER OPERATION AND
EXPANSION. (U)

DESCRIPTIVE NOTE: SUMMARY TECHNICAL REPT, FOR 1 APR 63-
31 MAR 64,

AUG 64 73P BRADEN, R. C. ; WRIGHT, C. S. ;

CONTRACT: AF33 615 1061 , AF33 657 9149

PROJ: 7381

TASK: 738103

MONITOR: ML .

TDR64 235

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•SUBJECT INDEXING, MECHANICAL PROPERTIES),
(•INFORMATION RETRIEVAL, LIBRARIES), DATA PROCESSING
SYSTEMS, DATA STORAGE SYSTEMS, DISPLAY SYSTEMS, DATA
METALS, ALLOYS, DOCUMENTATION (U)

THE REPORT DISCUSSES THE CONTENT, USE AND OPERATION
OF THE MECHANICAL PROPERTIES DATA CENTER,
SEARCH FREQUENCY, DATA INPUT, DOCUMENT ACQUISITION,
AND LINK-ROLE INDEXING ARE TOPICS OF THE REPORT, A
REVIEW OF PROJECT ACTIVITIES EXPRESSED AS PERCENTAGES
OF EXPENDED EFFORT IS PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-606 181

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC DOCUMENTS APPLICABLE TO STATE AND LOCAL
GOVERNMENT PROBLEMS.

(U)

DESCRIPTIVE NOTE: SCIENTIFIC REPT.,

AUG 64 10P ISAACS, HERBERT H. ;
REPT. NO. TM-2025

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*SYSTEMS ENGINEERING, BIBLIOGRAPHIES),
(*INDEXES, OPERATIONS RESEARCH), (*BIBLIOGRAPHIES,
SYSTEMS ENGINEERING), (*SOCIOLOGY, SYSTEMS ENGINEERING),
DOCUMENTATION, UNITED STATES GOVERNMENT, MEDICAL
RESEARCH, PROGRAMMING (COMPUTERS), EDUCATION, TRAINING,
URBAN PLANNING, SIMULATION, INFORMATION RETRIEVAL, LAW,
COMPUTERS, MANAGEMENT ENGINEERING (U)

THIS DOCUMENT CONTAINS A SELECTIVE LIST OF SDC
PUBLICATIONS AVAILABLE TO EXTERNAL REQUESTERS. THE
DOCUMENTS ON THIS LIST WERE SELECTED ON THE BASIS OF
THEIR GENERAL OR SPECIFIC APPLICABILITY TO CURRENT
PROBLEMS OF STATE AND LOCAL GOVERNMENT. WORK OF A
MORE BASIC RESEARCH NATURE HAS BEEN OMITTED. THE
LIST IS ORGANIZED BY SUBSTANTIVE CATEGORIES AND
ALPHABETICALLY BY AUTHOR WITHIN EACH CATEGORY. THE
CATEGORIES INCLUDE: THE ADMINISTRATION OF JUSTICE,
BIO-MEDICAL SYSTEMS, COMPUTER PROGRAM SYSTEMS, THE
DEVELOPMENT AND MANAGEMENT OF COMPUTER-BASED SYSTEMS,
EDUCATION AND TRAINING, INFORMATION RETRIEVAL,
SIMULATION IN EXPERIMENTATION, AND URBAN INFORMATION
SYSTEMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-606 825

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
TRANSFER EFFECTS WITHIN A HIERARCHICAL LEARNING TASK
AS A FUNCTION OF REVIEW AND CORRECTION ON SUCCESSIVE
PARTS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 5,
SEP 64 156P HERRILL, M. DAVID ;
CONTRACT: NONR3985 04

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON RESEARCH ON PRE-
PROGRAMED SELF-INSTRUCTION AND SELF-PROGRAMED
INDIVIDUALIZED EDUCATION. DOCTORAL THESIS.

DESCRIPTORS: (LEARNING, TEACHING MACHINES), (TEACHING
MACHINES, LEARNING), EDUCATION, RETENTION, TRAINING,
TRANSFER OF TRAINING, STUDENTS, FEEDBACK, CORRELATION
TECHNIQUES, ANALYSIS OF VARIANCE, CONTROL SEQUENCES (U)

A COMMON ASSUMPTION IS THAT LEARNING AND RETENTION
OF A HIERARCHICAL TASK ARE BOTH FACILITATED BY
MASTERING EACH SUCCESSIVE PART BEFORE PROCEEDING TO
THE NEXT PART. HOWEVER, RESEARCH CONDUCTED ON THE
TEACHING OF A COMPLEX IMAGINARY SCIENCE BY MEANS OF
SOCRATES, A COMPUTER-BASED TEACHING MACHINE,
CONTRADICTED THIS HYPOTHESIS. IT WAS CONCLUDED
THAT CORRECTION ON LESSON FRAMES TEACHES CAUTIOUS,
SLOW RESPONDING WITH NO GAIN IN ACCURACY OF RESPONSE
AND THAT IN A HIERARCHICAL TASK IN WHICH SUBJECTS ARE
ALLOWED TO REVIEW DURING THE TERMINAL TEST, AN
ATTEMPT TO ENSURE MASTERY OF EACH SUCCESSIVE PART
BEFORE PROCEEDING TO THE NEXT PART BY REQUIRING THE
STUDENT TO RECEIVE A TWO-STAGE REVIEW AND CORRECTION
PROCEDURE WHEN HE MAKES ERRORS DOES NOT FACILITATE
LEARNING OR RETENTION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 073

OFFICE OF AEROSPACE RESEARCH ARLINGTON VA
THE AIR FORCE-OAR CONTRIBUTION TO PROGRAMMED
INSTRUCTION. (U)

DESCRIPTIVE NOTE: MONOGRAPH NO. 1,
AUG 64 4P HARTORANA, S. V. :

PROJ: 9778

MONITOR: OAR , 64 10

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, AIR FORCE RESEARCH),
(*TRAINING, TRAINING DEVICES), TEACHING MACHINES,
MILITARY PERSONNEL, CIVILIAN PERSONNEL (U)
IDENTIFIERS: PROGRAMMED TEACHING (U)

THE PAPER DESCRIBES THE RESULTS OF A BRIEF
EXAMINATION OF DOCUMENTS AND REPORTS RELATED TO AIR
FORCE ACTIVITIES IN PROGRAMMED INSTRUCTION AND THE
INFLUENCE THIS NEW EDUCATIONAL METHOD IS HAVING ON
INSTRUCTIONAL AND TRAINING PROGRAMS, BOTH IN MILITARY
AND CIVILIAN FIELDS. THE DOCUMENTS ON WHICH IT
DRAWS ARE THOSE AVAILABLE IN THE FILES OF THE
DIVISION OF LIFE SCIENCES AND MATHEMATICAL
SCIENCES, DCS/PLANS AND PROGRAMS, HQ OFFICE
OF AEROSPACE RESEARCH (OAR), AND IN THE
DIRECTORATE OF LIFE SCIENCES, AIR FORCE
OFFICE OF SCIENTIFIC RESEARCH, OAR. THE
PURPOSE OF THIS INQUIRY WAS TO IDENTIFY THE WAYS THAT
AIR FORCE INTEREST IN, AND SUPPORT OF RESEARCH IN
THE FIELD OF PROGRAMMED INSTRUCTION ASSISTED
SIGNIFICANTLY IN ADVANCING KNOWLEDGE IN THE FIELD AND
IN USING THIS KNOWLEDGE. AN ADDITIONAL PURPOSE WAS
TO IDENTIFY THE WAY THAT ADVANCING KNOWLEDGE IN THIS
FIELD IS CHANGING THE METHODOLOGY AND TECHNIQUES OF
EDUCATION AND TRAINING GENERALLY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 443

ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
DECISION SCIENCES LABORATORY BIENNIAL PROGRESS
REPORT, JULY 1962-JUNE 1964.

(U)

OCT 64 51P

MONITOR: ESD .

TDR64 609

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•HUMAN ENGINEERING, INFORMATION
RETRIEVAL), (•DECISION MAKING, AIR FORCE OPERATIONS),
(•INFORMATION RETRIEVAL, HUMAN ENGINEERING), BEHAVIOR,
LEARNING, PERCEPTION (PSYCHOLOGY), MEMORY, TEACHING
MACHINES, CYBERNETICS, COMMUNICATION THEORY, SYSTEMS
ENGINEERING, REVIEWS (U)

THE DECISION SCIENCES LABORATORY INITIATES
EXPLORATORY DEVELOPMENT PROGRAMS; THAT IS, IT
ESTIMATES AND EXAMINES FUTURE OPERATIONAL
REQUIREMENTS OF THE AIR FORCE, PRIMARILY IN THE
AREA OF INFORMATION PROCESSING SYSTEMS, AND
DETERMINES FROM SUCH INVESTIGATION AND CONSIDERATION
THE IMPLICATIONS FOR MAN-MACHINE INTERACTION. DSL
IS ALSO RESPONSIBLE FOR DESIGNING, DEVELOPING,
PROCURING, EVALUATING, MANAGING, AND UPDATING CERTAIN
DISPLAY COMPONENTS OF AIR FORCE ELECTRONIC
SYSTEMS. FURTHER, IT PROVIDES ENGINEERING SERVICES
TO ALL ELEMENTS OF THE ELECTRONIC SYSTEMS
DIVISION WITHIN THE AREA ON DISPLAY
CHARACTERISTICS, HUMAN PERFORMANCE, AND MAN-MACHINE
RELATIONSHIP PROBLEMS FOR BOTH PRESENT AND FUTURE
AIR FORCE MILITARY INFORMATION SYSTEMS,
NEEDS. TOPICS DISCUSSED INCLUDES: DATA
PRESENTATION AND DISPLAY, LEARNING, DECISION MAKING
AND PROBLEM SOLVING, PROGRAMMED TEACHING AND
AUTOMATED TRAINING, AND COMMUNICATION THEORY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-607 782

AMERICAN INST FOR RESEARCH PITTSBURGH PA
THE INVESTIGATION OF STEP SIZE AND ERROR RATE IN
PROGRAMMED INSTRUCTION.

(U)

JUL 64 110P KLAUS, DAVID J. I

CONTRACT: N61339 1208

MONITOR: NAVTRADEVEN , 1208 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (TEACHING MACHINES, MILITARY TRAINING),
LINEAR PROGRAMMING, LEARNING, ERRORS, STUDENTS,
TRAINING, TABLES, TRAINING DEVICES

(U)

AN INVESTIGATION WAS UNDERTAKEN TO DETERMINE WHETHER STEP SIZE IN LINEAR PROGRAMS COULD BE DEFINED, MEASURED AND MANIPULATED, AND TO DETERMINE THE EFFECTS OF VARIOUS SIZES OF STEP ON ERROR RATE AND ACHIEVEMENT FOR LEARNERS AT THREE LEVELS OF ABILITY. RESPONSE, CUE, CONTEXT, AND ENRICHMENT COMPONENTS OF A FRAME WERE USED TO DEFINE BOTH INTRAFRAME AND INTERFRAME STEP SIZE. NUMERICAL SCALES THEN WERE DEVELOPED TO MEASURE STEP SIZE AND A SET OF MANIPULATIONS WAS DEVISED FOR USE IN MODIFYING THE STEP SIZE OF EXISTING PROGRAMS. NORMATIVE STEP-SIZE VALUES WERE DETERMINED FROM A SURVEY OF TEN PUBLISHED PROGRAMS. THE RESULTS OF THE STUDY SUGGEST THAT, WITHIN THE RANGE OF STEP SIZES INVESTIGATED AND WITHIN THE RANGE OF ERROR RATES PRODUCED, NEITHER IS AN IMPORTANT VARIABLE WITH RESPECT TO ACHIEVEMENT REGARDLESS OF THE ABILITY LEVEL OF THE LEARNER. IT IS RECOMMENDED THAT LESS CONSIDERATION BE GIVEN TO STEP SIZE WHEN WRITING A LINEAR PROGRAM AND THAT LESS EMPHASIS BE PLACED ON ERROR RATE WHEN REVISING A PROGRAM PROVIDING STEP SIZE AND ERROR RATE ARE NOT EXCESSIVELY LARGE.

(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 787

RAND CORP SANTA MONICA CALIF

THE TEACHING OF COMPUTING,

(U)

OCT 64 6P GRUENBERGER, FRED I

REPT. NO. P-2998

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*COMPUTERS,
EDUCATION), INSTRUCTORS, STUDENTS, COMPUTER
PERSONNEL

(U)

THE DIFFERENT REASONS WHY TEACHING THE FUNDAMENTALS
OF COMPUTERS ARE MORE ENJOYABLE AND DIFFERENT FROM
TEACHING OTHER SUBJECTS ARE OFFERED,

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-607 809

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

PROGRAMMED INSTRUCTION - PAST, PRESENT, FUTURE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

SEP 64 22P ABMA, JOHN S. ;

PROJ: 1710

TASK: 171007

MONITOR: AMRL , TR64 89

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PAPER PREPARED FOR PUBLICATION IN
'RESEARCH AND TECHNOLOGY DIVISION BRIEFS,' THIRD
QUARTER, 1964.

DESCRIPTORS: (*TEACHING MACHINES, EDUCATION),
(*EDUCATION, TEACHING MACHINES), TRAINING, LEARNING,
AUTOMATION, LINEAR PROGRAMMING, PROGRAMMING
(COMPUTERS) (U)

PROGRAMED INSTRUCTION HAS EXISTED IN ITS PRESENT
FORMS FOR APPROXIMATELY TEN YEARS. THREE MAJOR
APPROACHES ARE: THE 'ADJUNCT AUTOINSTRUCTION'
OF SIDNEY L. PRESSEY, THE 'INTRINSIC
PROGRAMING' OF NORMAN A. CROWDER, AND THE
'LINEAR PROGRAMING' OF B. F. SKINNER. MOST
CURRENT RESEARCH IS CENTERING ON LINEAR PROGRAMING.
RESULTS INDICATE THAT PROGRAMED INSTRUCTION IS
SUCCESSFUL IN SOME APPLICATIONS, BUT NOT THE ANSWER
TO ALL TRAINING PROBLEMS. THE FUTURE MAY SEE AN
INTEGRATION OF PROGRAMED INSTRUCTION AND OTHER
TRAINING TECHNIQUES WITHIN A SYSTEMS APPROACH TO
TRAINING AND EDUCATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. JONKOB

AD-608 216

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

CURRENT STATUS OF THE TECHNOLOGY OF TRAINING. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.

SEP 64 40p ECKSTRAND, GORDON ;

PROJ: 1710

MONITOR: AMRL , TR64 86

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: THE PAPER WAS READ BY GORDON A. ECKSTRAND AT THE ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION (72TH), HELD AT LOS ANGELES, CALIF.. 4-9 SEP 64.

DESCRIPTORS: (*TRAINING, STANDARDS), (*HUMAN ENGINEERING, TRAINING DEVICES), PERSONNEL, PERFORMANCE (HUMAN), LEARNING, SIMULATION, TEACHING MACHINES, MILITARY TRAINING, PSYCHOMETRICS (U)

A BRIEF OVERVIEW OF THE CURRENT STATUS OF THE TECHNOLOGY OF TRAINING IS PRESENTED. THE PROCESSES INVOLVED IN DESIGNING A TRAINING SYSTEM ARE ARBITRARILY ANALYZED INTO THE FOLLOWING THREE AREAS: (1) DETERMINING TRAINING REQUIREMENTS, (2) DEVELOPING THE TRAINING ENVIRONMENT, AND (3) MEASURING THE RESULTS OF TRAINING. IN EACH OF THESE AREAS, AN ATTEMPT IS MADE TO SUMMARIZE AND EVALUATE THE ADEQUACY OF OUR TECHNOLOGY. IN A FINAL SECTION OF THE REPORT, CERTAIN AREAS OF RESEARCH WHICH APPEAR TO BE ESPECIALLY PROMISING ARE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKC8

AD-608 296

APPLIED SCIENCE ASSOCIATES INC VALENCIA PA
A FIELD EXPERIMENTAL STUDY OF PROGRAMMED INSTRUCTION
ON A MANIPULATIVE TASK. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR AUG-DEC 63,
OCT 64 54P FOLLEY, JOHN D., JR.; BOUCK,

AUBREY J.; FOLEY, JOHN P., JR.;

CONTRACT: AF33 657 1135

PROJ: 1710

TASK: 171004

MONITOR: AMRL (R64 90

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*MILITARY TRAINING, TRAINING DEVICES),
(*TRAINING DEVICES, MILITARY TRAINING), PERFORMANCE
(HUMAN), MILITARY PERSONNEL, EDUCATION, ANALYSIS OF
VARIANCE, SMALL ARMS, TEACHING MACHINES (U)

APPROXIMATELY 1300 BASIC MILITARY TRAINEES WERE
USED IN A 3 X 7 FACTORIAL STUDY OF MODES AND CONTENT
OF TRAINING ON A MANIPULATIVE PERFORMANCE TASK, THE
ASSEMBLY AND DISASSEMBLY OF THE M1 CARBINE. THE
MODES OF TRAINING INCLUDED LECTURE-DEMONSTRATION, A
PRINTED LINEAR PROGRAM WITH OR WITHOUT AN ANSWER
SHEET, AND AN AUDIO-VISUAL PROGRAM PRESENTED BY AN
AUDIO-VISUAL DEVICE OR BY A PRINTED BOOKLET, ALSO
EVALUATED WAS A CONDITION IN WHICH THE TRAINEES TRIED
TO PERFORM THE FINAL TASK AND WERE ASSISTED AS
REQUIRED, THE CONTENT OF THE TRAINING WAS VARIED
BY PROVIDING TRAINING ON ASSEMBLY ONLY, OR
DISASSEMBLY ONLY, OR BOTH. THE FINAL CRITERIA WERE
THE TIME AND THE NUMBER OF ASSISTS REQUIRED TO
DISASSEMBLE AND ASSEMBLE THE M1 CARBINE.
ALTHOUGH THE MODES OF TRAINING DIFFERED
SIGNIFICANTLY, THE RANKINGS WERE VERY DIFFERENT ON
THE TWO CRITERIA, NO MODE OF TRAINING SEEMED
CLEARLY SUPERIOR TO THE OTHER MODES. THE AUDIO-
VISUAL PROGRAM PRESENTED IN THE PRINTED BOOKLET
SEEMED SOMEWHAT INFERIOR. TRAINING ON ONLY THE
ASSEMBLY OF THE CARBINE RESULTED IN AS GOOD
PERFORMANCE AS TRAINING ON BOTH ASSEMBLY AND
DISASSEMBLY. THE FINDINGS PROBABLY CAN BE
GENERALIZED ONLY TO RELATIVELY SIMPLE PROCEDURAL TYPE
TASKS. REPLICATION OF THE STUDY WITH MORE COMPLEX
PERFORMANCE TASKS IS RECOMMENDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-608 306

ADAPTRONICS INC MCLEAN VA

STUDY OF NEUROTRON NETWORKS IN LEARNING AUTOMATA,

VOLUME 1: LEARNING AUTOMATA AND THE NEUROTRON, (U)

DESCRIPTIVE NOTE: FINAL ENGINEERING REPT., VOL. 1, IS
FEB 63-15 FEB 64.

JUN 64 66P GILSTRAP, L. O., JR.,

CHAULIAGON, A. C. ; KEMPA, H. J. ; MODDES, R. E. J.

CONTRACT: AF33 657 10734

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•AUTOMATA, LEARNING), (•ARTIFICIAL
INTELLIGENCE, NERVE CELLS), (•NETWORKS, AUTOMATA),
THEORY, DESIGN, CONSTRUCTION, OPERATION, INSTRUCTION
MANUALS, PERFORMANCE (ENGINEERING) (U)

IDENTIFIERS: NEUROTRON NETWORKS, LEARNING
MACHINES (U)

A THEORY OF LEARNING AUTOMATA, WITH MATHEMATICAL
FORMULATION, IS PRESENTED AND APPLIED TO THE
DEVELOPMENT OF THE EXPERIMENTAL NEUROTRON (A
NEUROMINE WITH THE ABILITY TO LEARN BOTH ANALOG AND
LOGICAL FUNCTIONS). CONSTRUCTION OF THIS NEUROMINE
IS DETAILED AND LOGIC AND CIRCUIT DIAGRAMS ARE
PRESENTED. THIS VOLUME ALSO INCLUDES A DETAILED
MANUAL OF OPERATION FOR THE EXPERIMENTAL
NEUROTRON, NO EXTENSIVE DISCUSSION OF
APPLICATIONS IS STAGED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 307

ADAPTRONICS INC MCLEAN VA

STUDY OF NEUROTRON NETWORKS IN LEARNING AUTOMATA,

VOLUME 11: COMPUTER SIMULATION. (U)

DESCRIPTIVE NOTE: FINAL ENGINEERING REPT., VOL. 2, 15

FEB 63-15 FEB 64,

JUN 64 66P

SNYDER, R. F. ; BROWN, R. J. ;

MODDES, R. E. J. ;

CONTRACT: AF33 657 10734

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*AUTOMATA, LEARNING), (*ARTIFICIAL
INTELLIGENCE, NERVE CELLS), (*NETWORKS, PROGRAMMING
(COMPUTERS)), SIMULATION, COMPUTERS, CONTROL SEQUENCE (U)
IDENTIFIERS: NEUROTRON NETWORKS, LEARNING MACHINES,
IBM 7094 (U)

DESCRIPTIONS AND FLOW DIAGRAMS FOR THE SIMULATION
OF A NEUROTRON (A NEUROMIME WITH THE ABILITY TO
LEARN BOTH ANALOG AND DIGITAL FUNCTIONS) NETWORK
ARE PRESENTED. THE PROGRAM HAS BEEN PREPARED FOR
THE IBM 7094 COMPUTER AND IS ENCODED IN A
SUBROUTINE COMPLEX IN FORTRAN IV AND MACRO-
ASSEMBLY PROGRAM CODE (MAP) FOR USE WITH THE
IBM IBJOB MONITOR SYSTEM. ALTHOUGH EXACT
APPLICATIONS TO LEARNING AND GOAL SITUATIONS ARE NOT
INCLUDED, THESE ASPECTS ARE DISCUSSED TO A DEGREE
THAT ALLOWS COMPLETE USE OF THE SIMULATION VEHICLE IN
SPECIFIC PROBLEM AREAS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 663

ITEK CORP WALTHAM MASS

RUSSIAN STENOTYPE EQUIPMENT. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,

OCT 64 22P LOEB, DAVID ; MARKUS, RICHARD ;

NOVIC, PHIL ;

CONTRACT: AF30 602 3213

PROJ: 5591

MONITOR: RADC , TDR64 324

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, USSR), (*INPUT-
OUTPUT DEVICES, DATA PROCESSING SYSTEMS), PROGRAMMING
(COMPUTERS), TYPEWRITERS, DESIGN, LANGUAGE, TEACHING
MACHINES, DISPLAY SYSTEMS (U)
IDENTIFIERS: STENO TYPE EQUIPMENT, CRYLLIC
ALPHABET (U)

THE RUSSIAN STENO TYPE PROGRAM IS CONCERNED WITH
THE DEVELOPMENT OF A STENO TYPE INPUT SYSTEM FOR
AUTOMATIC TRANSLATION OF SPOKEN AND WRITTEN
RUSSIAN. UNDER THIS PROGRAM AN ENGINEERING MODEL
OF THE RUSSIAN STENO TYPE EQUIPMENT IS BEING
DEVELOPED TO DEMONSTRATE THE FEASIBILITY OF SUCH A
HIGH-SPEED, MANUAL, ENCODING SYSTEM. THIS REPORT
IS GIVEN IN THREE PARTS, EACH RELATED TO A MAIN
SECTION OF THE PROGRAM: THE STENOCODE (AND
KEYBOARD) DESIGN STUDY, THE DIGITAL HARDWARE AND
THE STENO TEACHING MACHINE. THE STENOCODE
DESCRIPTION INCLUDES THREE PARTS: (1) KEYBOARD
DESIGN; (2) THE NUMBERED ENCODING CODE
(NEC) (3) THE SPELLING-OUT CODE (SOC)
ENCODING SYSTEM. SOME DETAILS OF THE NEC SYSTEM
REMAIN TO BE WORKED OUT AND WILL BE COVERED IN THE
FINAL REPORT. DIGITAL HARDWARE IS DEVOTED TO THE
SERIALIZER-DECODER. THE STENO TEACHING MACHINE
DISCUSSION INCLUDES A DESCRIPTION OF SOME OF THE
HARDWARE AND ITS OPERATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-608 684

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
COMPUTER-BASED SYSTEMS: THE NEW RESEARCH AID. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 6,
NOV 64 16P DAVIS, DANIEL J, ISTOLUROW,
LAWRENCE M. ;
CONTRACT: NONR3985 OS

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON RESEARCH ON PRE-
PROGRAMMED SELF-INSTRUCTION AND SELF-PROGRAMMED
INDIVIDUALIZED EDUCATION. LEGIBILITY OF THIS DOCUMENT
IS IN PART UNSATISFACTORY. REPRODUCTION HAS BEEN MADE FROM
BEST AVAILABLE COPY.

DESCRIPTORS: (*TEACHING MACHINES, PROGRAMMING
(COMPUTERS)), (*LEARNING, TEACHING MACHINES), EDUCATION,
ACHIEVEMENT TESTS, APTITUDE TESTS, PERSONALITY,
PERFORMANCE (HUMAN), PSYCHOMETRICS, CONTROL SYSTEMS,
STUDENTS, SYMPOSIA (U)
IDENTIFIERS: SOCRATES (U)

TWO ARGUMENTS ARE PRESENTED IN CONNECTION WITH
PROGRAMED INSTRUCTION: ONE CONCERNS ITS PAST, THE
OTHER ITS FUTURE. THE FIRST, AND HISTORICAL POINT,
IS THAT PROGRAMED INSTRUCTION HAS ALREADY SERVED THE
STUDY OF LEARNING BY FOCUSING ATTENTION ON THE
PROBLEM OF INDIVIDUAL DIFFERENCES. ALTHOUGH
TOLMAN (1936) AND HULL (1943), FOR
EXAMPLE, ACKNOWLEDGED THE RELATIONSHIP BETWEEN
INDIVIDUAL DIFFERENCES AND LEARNING, LITTLE REAL
ATTENTION WENT INTO THE EXPLICATION OF THIS
RELATIONSHIP UNTIL THE ADVENT OF PROGRAMED
INSTRUCTION. THE SECOND, AND PROSPECTIVE ARGUMENT,
IS THAT COMPUTER-BASED TEACHING MACHINE SYSTEMS WILL
CONTRIBUTE TO EXPERIMENTS IN BASIC LEARNING, AND, IN
FACT, WILL PERMIT THE STUDY OF VARIABLES RELATING TO
RESPONSE CONTINGENCIES THAT CAN NOT BE STUDIED IN ANY
OTHER WAY. PROGRAMED INSTRUCTION HAS HELPED IN
UNITING TWO FIELDS OF PSYCHOLOGY THAT HAVE DEVELOPED
SEPARATELY, BUT THAT NEED TO BE RELATED IN
APPLICATION (STOLUROW, 1960; 1961). THESE ARE THE
FIELD OF PSYCHOMETRICS, WHICH HAS CONCERNED ITSELF
WITH INDIVIDUAL DIFFERENCES IN ABILITIES AND
ACHIEVEMENT, AND THE FIELD OF LEARNING WHICH, TO A
LARGE EXTENT, HAS IGNORED INDIVIDUAL DIFFERENCES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 156

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
CYBERNETICS IN SCHOOL. (U)

NOV 64 18p LANDA, L. I

MONITOR: FTD .TT TT64 77, 65 60456

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
ZNANIE-SILA (USSR) 1962, V. 37, NO. 10, P. 33-35.
LEGIBILITY OF THIS DOCUMENT IS IN PART UNSATISFACTORY.
REPRODUCTION HAS BEEN MADE FROM BEST AVAILABLE COPY.

DESCRIPTORS: (CYBERNETICS, EDUCATION), (EDUCATION,
CYBERNETICS), LEARNING, INSTRUCTORS, STUDENTS,
REASONING, PERCEPTION (PSYCHOLOGY), TRAINING DEVICES,
TEACHING MACHINES, USSR (U)

TRANSLATION OF RUSSIAN ARTICLE: CYBERNETICS IN
SCHOOL.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 251

HARVARD UNIV CAMBRIDGE MASS COMMITTEE ON PROGRAMMED
INSTRUCTION

DECISION MAKING WITH FREE OPERANT RESPONSES. (U)

JUN 64 24P HOLZ, WILLIAM C. I

CONTRACT: AF19 628 2404

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR64 449

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•DECISION MAKING, PSYCHOMETRICS),
(•LEARNING, DECISION MAKING), (•HUMAN ENGINEERING,
DECISION MAKING), BEHAVIOR, REACTION (PSYCHOLOGY),
CONDITIONED REFLEX, PERFORMANCE (HUMAN), STUDENTS,
PERFORMANCE TESTS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THESE EXPERIMENTS EXPLORED THE SUITABILITY OF FREE
OPERANT TECHNIQUES IN THE INVESTIGATION OF CHOICE
BEHAVIOR AND DECISION MAKING. YOUNG ADULTS WERE
THE SUBJECTS. TWO RESPONSE MANIPULANDA WERE
AVAILABLE, AND POINTS WERE INTERMITTENTLY SCHEDULED
IN DIFFERENT PROPORTIONS FOR EACH. THE NUMBER OF
POINTS AT THE END OF THE SESSION DETERMINED THE
SUBJECTS' PAYMENT. THE SCHEDULE BY WHICH THE
POINTS COULD RESULT WAS THE INDEPENDENT VARIABLE, AND
THE RELATIVE FREQUENCY OF THE TWO RESPONSES, WHICH
REPRESENTED THE SUBJECT'S CHOICE, WAS THE DEPENDENT
VARIABLE. WHEN THE POINTS WERE SCHEDULED RANDOMLY
IN TIME, THE ANTICIPATED RESULT ON THE BASIS OF
PREVIOUS FINDINGS WAS THAT THE RELATIVE FREQUENCY OF
RESPONSE WOULD MATCH THE RELATIVE FREQUENCY OF
POINTS. THE OBSERVED RESULT DID NOT CLEARLY FOLLOW
THIS PATTERN. OVER THE PERIOD STUDIED, THE PATTERN
WAS ONE OF APPROXIMATELY EQUAL RESPONDING TO BOTH
CHOICES REGARDLESS OF THE RELATIVE FREQUENCY OF
POINTS OBTAINED. IN TWO SIMILAR EXPERIMENTS THE
POINTS WERE SCHEDULED RANDOMLY IN TIME, BUT A
REQUIREMENT WAS ADDED THAT RESPONSES MUST BE SPACED
AT TWO SECOND INTERVALS TO PRODUCE A POINT. THE
PURPOSE OF THIS EXPERIMENT WAS TO DETERMINE IF
REDUCING THE HIGH RATE OF RESPONSE OBSERVED IN THE
PREVIOUS EXPERIMENT WOULD LEAD THE RELATIVE FREQUENCY
OF RESPONSE TO CONFORM WITH THE EXPECTED PATTERN.
UNDER THESE CONDITIONS, THE RESULTS CLOSELY
APPROXIMATED THE MATCHING MODEL. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 368

ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
HUMAN ENGINEERING IN THE DESIGN OF INSTRUCTIONAL
SYSTEMS.

(U)

SEP 64 19P MAYER, SYLVIA R. I

PROJ: 7682

TASK: 768204

MONITOR: ESD TOR64 454

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (HUMAN ENGINEERING, TRAINING DEVICES),
(TEACHING MACHINES, HUMAN ENGINEERING), EDUCATION,
INSTRUCTORS, STUDENTS, LEARNING, DECISION MAKING,
PERFORMANCE (HUMAN), DISPLAY SYSTEMS, RELIABILITY,
DESIGN

(U)

A CONCEPTUAL MODEL IS PROPOSED FOR THE USE IN THE
APPLICATION OF HUMAN ENGINEERING PRINCIPLES AND
TECHNIQUES TO THE DESIGN OF INSTRUCTIONAL SYSTEMS.
THE TRAINEE AND INSTRUCTOR ARE VIEWED AS OPERATORS
WITHIN AN INFORMATION SYSTEM. TO ILLUSTRATE THIS
MODEL AND ITS APPLICATION, EXAMPLES ARE DRAWN FROM
THE LITERATURE AND FROM CURRENT RESEARCH ON
INSTRUCTIONAL SYSTEMS. A PRELIMINARY HUMAN
ENGINEERING GUIDE IS OUTLINED WHICH PRESENTS FACTORS
CRITICAL TO DESIGN DECISIONS FOR INSTRUCTIONAL
SYSTEMS. THE MODEL AND GUIDE ATTEMPT TO COUNTERACT
CURRENT TENDENCIES TOWARD PREMATURE STANDARDIZATION
OF INSTRUCTIONAL SYSTEM STRUCTURE, AND TO BRING
INSTRUCTIONAL SYSTEM DEVELOPMENT INTO THE MAIN STREAM
OF THE APPLIED SCIENCE OF HUMAN ENGINEERING.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-609 486

UTAH UNIV SALT LAKE CITY

INFORMATION AND SCIENTIFIC CREATIVITY, (U)

JUN 64 20P TAYLOR, CALVIN W. ;

CONTRACT: AF AFOSR144 63

MONITOR: AFOSR , 64 2502

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PAPER PRESENTED AT THE SECOND
SYMPOSIUM OF THE FEDERAL COUNCIL FOR SCIENCE AND
TECHNOLOGY, 13 APR 64, ON THE TOPIC, 'TECHNICAL
INFORMATION AND THE FEDERAL LABORATORY.'

DESCRIPTORS: (1) SCIENTIFIC PERSONNEL, PERFORMANCE
(HUMAN), (1) INFORMATION RETRIEVAL, SCIENTIFIC
PERSONNEL, HUMAN ENGINEERING, SUPERVISORY PERSONNEL,
SYMPOSIA, INTELLIGENCE TESTS, LEARNING, MEMORY,
REASONING, INDUSTRIAL PSYCHOLOGY (U)

IDENTIFIERS: CREATIVE THINKING (U)

IN THIS PAPER THE PROBLEM OF STUDYING WHAT
CONSTITUTES EFFECTIVENESS AND CREATIVITY IN A
SCIENTIST IS DISCUSSED. THE WAY THE SCIENTIST
RECEIVES AND HANDLES INFORMATION, THE INTELLECTUAL
CLIMATE IN WHICH HE WORKS, AND THE NATURE OF THE
INFORMATION RECEIVED BY HIM ARE ALL EXAMINED IN THEIR
BEARING ON THE CREATIVE PROCESS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-609 540

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
A MODEL AND CYBERNETIC SYSTEM FOR RESEARCH ON THE
TEACHING-LEARNING PROCESS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 4,
SEP 64 45p STOLURON, LAWRENCE M. ;

CONTRACT: NONR398504

PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON RESEARCH ON PRE-
PROGRAMED SELF-INSTRUCTION AND SELF-PROGRAMED
INDIVIDUALIZED EDUCATION. PRESENTED AT A SYMPOSIUM
ON PSYCHOLOGICAL PROBLEMS ON CYBERNETIC RESEARCH
HELD AT HUMBOLDT UNIV., BERLIN, E. GERMANY, SEP
64. THIS PAPER, IN GERMAN, WILL BE PUBLISHED IN THE
PROCEEDINGS OF THE SYMPOSIUM.

DESCRIPTORS: (+LEARNING, ANALYSIS), (+CYBERNETICS,
EDUCATION), PERSONALITY, PSYCHOMETRICS, INSTRUCTORS,
TEACHING MACHINES, DECISION THEORY, SCIENTIFIC
RESEARCH (U)

IDENTIFIERS: MAN-MACHINE SYSTEMS, SOCRATES (U)

THE PAPER FIRST PRESENTS THE BASIS ELEMENTS OF A
LEARNING THEORY THAT DISTINGUISHES AMONG THREE
INTERRELATED PROCESSES, AND THEN DESCRIBES THE WAY IN
WHICH THESE PROCESSES DETERMINE THE REQUIREMENTS OF
AN ADAPTIVE TEACHER. THE LEARNING-TEACHING PROCESS
IS CONSIDERED AS A CYBERNETIC MAN-MACHINE SYSTEM AND
ONE WHICH IS DESIGNED TO TAKE INTO ACCOUNT INDIVIDUAL
DIFFERENCES IN LEARNERS. THE SOCRATES DESIGN AND
THE CHARACTERISTICS OF IDIOMORPHIC PROGRAMING ARE
INDICATED. THIS PART OF THE PAPER ELUCIDATES THE
CONCEPTION AND ILLUSTRATES. IN OPERATIONAL TERMS, THE
WAY IN WHICH DIFFERENT CHARACTERISTICS OF LEARNERS
ARE TAKEN INTO ACCOUNT IN IDIOMORPHIC PROGRAMING
WHICH IS IMPLEMENTED AS A TWO-STAGE DECISION PROCESS.
SOME RESEARCH IS CITED TO INDICATE THE BASIS FOR
INCLUDING CERTAIN FEATURES IN THE SYSTEM DESIGN AND
OTHER RESEARCH. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-609 749

MASSACHUSETTS INST OF TECH CAMBRIDGE ENGINEERING PROJECTS
LAB

HUMAN USE OF SHORT TERM MEMORY IN PROCESSING
INFORMATION ON A CONSOLE, (U)

SEP 64 49P ZEIGLER, BERNARD P. ; SHERIDAN,

THOMAS B. ;

REPT. NO. DSR-9960-1

CONTRACT: AF19 628 3317

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR64 620

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPUTER PERSONNEL, MEMORY), (*COMPUTER
STORAGE DEVICES, HUMAN ENGINEERING), DECISION MAKING,
COMPUTERS, INFORMATION RETRIEVAL, DATA PROCESSING
SYSTEMS, DATA STORAGE SYSTEMS, COMMUNICATION THEORY,
LEARNING (U)
IDENTIFIERS: MAN-MACHINE SYSTEMS (U)

THE REPORT ASSUMES THAT AN OPERATOR'S CONSOLE
CONSTITUTES A THIRD FORM OF MEMORY IN ADDITION TO
THAT INTEGRAL TO THE HUMAN AND THAT INTEGRAL TO THE
MACHINE WHICH IS NOT DIRECTLY ACCESSIBLE TO THE
HUMAN. QUESTIONS ARE RAISED CONCERNING THE
CHARACTERISTIC MODES OF HUMAN STORAGE AND RETRIEVAL
OF INFORMATION FROM INTERNAL MEMORY WHEN SUCH
EXTERNAL MEMORY IS ACCESSIBLE. THE REPORT ALSO
INTRODUCES THE CONCEPT OF ASSOCIATIVE MEMORY NETS
FORMED BY CUERELATED IMAGES OF EXTERNAL EVENTS. A
LIST PROCESSING EXPERIMENT IS DESCRIBED. STORAGE
STRUCTURES CHARACTERIZING INTERNAL HUMAN MEMORY AND
EXTERNAL CONSOLE MEMORY IN THIS TASK ARE POSTULATED.
A RETRIEVAL MODEL IMPLIED BY THESE STURCTURES IS
CONSTRUCTED TO ACCOUNT FOR THE EFFECTS OF COMPUTATION
AND LEARNING UPON THE FEATURES OF THE EXPERIMENTALLY
OBTAINED CURVES. INSUFFICIENT RETRIEVAL OF
REQUIRED INFORMATION FROM INTERNAL MEMORY IS ASSUMED
TO NECESSITATE EXTERNAL MEMORY SEARCH. THE EFFECT
OF COMPUTATION IS TO INCREASE THE PROBABILITY OF
INSUFFICIENT RETRIEVAL AND HENCE THE FREQUENCY OF
EXTERNAL SEARCH. LEARNING DECREASES THIS
PROBABILITY. THE EFFECTS OF INDUCING ALTERNATE
FORMS OF INTERNAL STORAGE ARE STUDIED AND FOUND
GENERALLY TO RESULT IN INCREASED STORAGE AND
RETRIEVAL TIMES. IMPLICATIONS FOR CONSOLE DESIGN
ARE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-609 801

PITTSBURGH UNIV PA

AN EVALUATION OF MULTIPLE TRACKS IN A LINEAR PROGRAM.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.

OCT 64 22p GLASER, ROBERT ; REYNOLDS,

JAMES H. ; HARAKAS, THEODORE ; HOLZMAN, A. G. ;

ABMA, JOHN S. ;

CONTRACT: AF33 616 7175

PROJ: 1710

TASK: 171007

MONITOR: AMRL . TR64 108

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING DEVICES, TEACHING MACHINES),
(*TEACHING MACHINES, PSYCHOMETRICS), (*PSYCHOMETRICS,
TEACHING MACHINES), TRAINING, LINEAR SYSTEMS, LEARNING,
PSYCHOLOGY, VERBAL BEHAVIOUR, PERFORMANCE (HUMAN),
TESTS, EDUCATION

(U)

TWO EXPERIMENTS WERE PERFORMED TO EVALUATE MULTITRACKING (BRANCHING) IN A LINEAR PROGRAM. IN EXPERIMENT ONE, THE MULTITRACKING CONSISTED OF PROVIDING ADDITIONAL CUES AT EACH FRAME FOR USE BY THOSE STUDENTS WHO FELT UNSURE OF THEIR RESPONSE. RESULTS INDICATED NO SIGNIFICANT DIFFERENCE IN EFFICIENCY BETWEEN THE REGULAR LINEAR PROGRAM AND THE MULTITRACK PROGRAM. IN EXPERIMENT TWO, THE MULTITRACKING CONSISTED OF LARGE FRAMES FOLLOWED BY MORE DETAILED FRAMES WHENEVER THE STUDENT MADE AN ERROR. LARGE FRAMES WERE DEVELOPED BY COMBINING AN AVERAGE OF THREE SMALL FRAMES. AGAIN, THE RESULTS INDICATED NO DIFFERENCE IN INSTRUCTIONAL EFFICIENCY BETWEEN THE REGULAR LINEAR PROGRAM AND THE MULTITRACK PROGRAM. ALTHOUGH MORE ERRORS WERE MADE ON THE LARGESTEP BRANCHING PROGRAM, PERFORMANCE ON CRITERION TESTS WAS AS GOOD AS FOR THE REGULAR SMALL-STEP LINEAR PROGRAM. ALTHOUGH BRANCHING SEEMS A REASONABLE WAY TO ACCOMMODATE INDIVIDUAL DIFFERENCES, THE TWO METHODS ATTEMPTED IN THIS RESEARCH DID NOT SHOW AN ADVANTAGE. MORE PROMISING METHODS OF BRANCHING MIGHT BE (A) LESS FREQUENT BRANCHES, AT CRITICAL POINTS IN THE PROGRAM, AND (B) LARGE-STEP FRAMES FOLLOWED BY SPECIAL REMEDIAL FRAMES, RATHER THAN BY MERE REPETITION OF PARTS OF THE ORIGINAL LARGE FRAME. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0MK08

AD-609 802

PITTSBURGH UNIV PA

LEARNING SET FORMATION IN PROGRAMMED
INSTRUCTION.

DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.

NOV 64 21P REYNOLDS, JAMES H. ; GLASER,

ROBERT ; ABMA, JOHN S. ;

CONTRACT: AF33 616 7175 ,OE2 10 057

PROJ: 1710

TASK: 171007

MONITOR: AMRL , TR64 114

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-609 801.

DESCRIPTORS: (*TRAINING DEVICES, TEACHING MACHINES),
(*TEACHING MACHINES, PSYCHOMETRICS), (*PSYCHOMETRICS,
TEACHING MACHINES), TRAINING, LEARNING, PSYCHOLOGY,
VERBAL BEHAVIOUR, PERFORMANCE (HUMAN), TESTS,
EDUCATION

IDENTIFIERS: PROGRAMMED INSTRUCTION

(U)

(U)

TWO DIFFERENT ORDERS OF THREE UNITS OF PROGRAMED INSTRUCTION WERE ADMINISTERED TO GROUPS OF STUDENTS MATCHED ON (A) INTELLIGENCE OR (B) RELEVANT ACHIEVEMENT TESTS. COMPARISONS WERE MADE BETWEEN GROUPS THAT WERE (A) HIGH OR (B) AVERAGE ON EACH MATCHING VARIABLE. THE HYPOTHESES BEING TESTED WERE THAT AFTER VARIED AMOUNTS OF PRIOR PRACTICE IN PROGRAMED INSTRUCTION, (A) LEARNING SET FORMATION WOULD NOT BE DEMONSTRATED BY THE HIGH INTELLIGENCE AND HIGH ACHIEVEMENT GROUPS, AND (B) LEARNING SET FORMATION WOULD BE DEMONSTRATED BY THE AVERAGE INTELLIGENCE AND AVERAGE ACHIEVEMENT GROUPS. ONLY PARTIAL SUPPORT WAS OBTAINED FOR EACH HYPOTHESIS. THE DATA INDICATED THE FOLLOWING: (A) IN A PROGRAMED SEQUENCE, ERROR RATE IS A MORE APPROPRIATE MEASURE THAN ACHIEVEMENT FOR OBSERVING LEARNING SET FORMATION. (B) LEARNING SET FORMATION IS OBSERVABLE IN PROGRAMED INSTRUCTION FOR ALL LEARNERS REGARDLESS OF INDIVIDUAL DIFFERENCES. SINCE, REDUCED ERROR RATE WAS THE INDICATION OF LEARNING SET FORMATION, THE PHENOMENON CAN BE MEASURED ONLY IN PROGRAMS INVOLVING A MODERATELY HIGH ERROR RATE. (C) SINCE ERROR RATE DIFFERED FOR SOME OF THE EXPERIMENTAL GROUPS WHILE ACHIEVEMENT REMAINED THE SAME, THE RESULTS WERE INTERPRETED TO MEAN THAT A MODERATELY HIGH ERROR RATE PROGRAM WHICH OFFERS OPPORTUNITY FOR CORRECTION OF RESPONSE ERRORS MAY BE AS EFFECTIVE IN PRODUCING LEARNING AS A LOW ERROR RATE PROGRAM .

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 093

ENTELEK INC NEWBURYPORT MASS

PROGRAMMED INSTRUCTION IN RETAIL SALES. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR SEP 61-SEP 62,

OCT 62 41p

HICKEY, ALBERT E.; LAIDLAW,

WILLIAM J. ;

CONTRACT: NONR363000

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•NAVAL PERSONNEL, LEARNING), (•LEARNING, PSYCHOMETRICS), EDUCATION, EFFECTIVENESS, INSTRUCTORS, MANAGEMENT ENGINEERING, COMMERCE, ACHIEVEMENT TESTS, RETENTION, ATTITUDES, TIME (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE REPORT DESCRIBES THE FIRST FULL-COURSE EVALUATION OF PROGRAMMED INSTRUCTION IN THE NAVY. PROGRAMMED INDIVIDUAL INSTRUCTION WAS SUBSTITUTED FOR PART OF THE LECTURE AND DISCUSSION, AND FOR ALL OF THE HOMEWORK ASSIGNMENTS IN AN 11-WEEK COURSE IN RETAIL SALES AND SHIP'S STORE MANAGEMENT AT THE U. S. NAVY SUPPLY CORPS SCHOOL.

SEVENTY-EIGHT OFFICER STUDENTS FOLLOWED THE NEW PROCEDURE, 52 FOLLOWED THE USUAL PROCEDURE, THE PROGRAM GROUP SAVED 56 PER CENT OF THE USUAL HOMEWORK TIME, OR 17 PER CENT OF THE USUAL OVER-ALL STUDY TIME, AND THE INSTRUCTORS OF THE PROGRAM GROUP SAVED 54 PER CENT OF THE USUAL LECTURE HOURS.

ACHIEVEMENT AND RETENTION IN THE PROGRAM GROUP WERE EQUAL TO THAT IN THE CONTROL GROUP. THE PROGRAM GROUP SHOWED MORE HOMOGENEOUS PERFORMANCE WITH AUDITING AND PROBLEM-SOLVING PROCEDURES. A SURVEY OF STUDENT ATTITUDES DISCLOSED THAT A MAJORITY OF THE PROGRAM STUDENTS FELT THE PROGRAM WAS MOST EFFECTIVE IN TEACHING AUDITING AND OTHER PROBLEMSOLVING PROCEDURES AND WERE AGREEABLE TO RECEIVING PROGRAMMED INSTRUCTION IN THE FUTURE. (AUTHOR) (U)

UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKCB

AD-610 214

RAND CORP SANTA MONICA CALIF

THE ROLE OF THE COMPUTER IN SECONDARY SCHOOLS. (U)

JAN 65 5P GRUENBERGER, F. J. ;

REPT. NO. P-3044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ANNUAL CONVENTION
OF THE NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS,
DENVER, COLO., 28 - 30 JAN. 65.

DESCRIPTORS: (*COMPUTERS, EDUCATION), (*EDUCATION,
COMPUTERS), TRAINING, COMPUTER PERSONNEL, STUDENTS,
THEORY (U)

THE DESIRABILITY OF HIGH SCHOOL COMPUTING COURSES
IS DISCUSSED, REASONS ARE ADVANCED TO JUSTIFY
HAVING COMPUTERS IN HIGH SCHOOLS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-610 572

OTIS ELEVATOR CO BROOKLYN N Y DEFENSE AND INDUSTRIAL
DIV

ADAPTIVE TRAINING AND NONVERBAL BEHAVIOR. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT..

JUL 64 36P HUDSON, EDWIN M. ;

CONTRACT: N61339 1395

MONITOR: NAVTRADEVCEM , 1395 1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRANSFER OF TRAINING, LEARNING,
(*TRAINING DEVICES, TRACKING), TEACHING MACHINES,
PERFORMANCE (HUMAN), BEHAVIOR, PERFORMANCE TESTS,
PSYCHOMOTOR TESTS, DISPLAY SYSTEMS, SIMULATORS, ERRORS,
FEEDBACK, SELECTION (U)

IDENTIFIERS: PREDICTION, PROGRAMMED INSTRUCTION (U)

A STUDY OF TRANSFER OF TRAINING IN DYNAMIC TRACKING
TASKS AS A FUNCTION OF THE DIFFICULTY LEVELS AND
PLANT CHARACTERISTICS USED DURING PRACTICE WITH AN
ADAPTIVE TRAINER. GROUPS TRAINED IN THE ADAPTIVE
MODES SHOWED GREATER TRANSFER FROM PRACTICE TO THE
TEST CONDITIONS THAN DID THE CONTROL GROUPS WHO
PRACTICED ON THE CRITERION. NEITHER CHANGES IN
PLANT CHARACTERISTICS NOR METHODS OF REGULATING THE
ADAPTIVE PARAMETERS HAD ANY SIGNIFICANT EFFECT UPON
THE AMOUNT OF LEARNING EXCEPT AS THEY AFFECTED THE
LEVEL OF DIFFICULTY OF THE TASK DURING PRACTICE.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 638

MASSACHUSETTS INST OF TECH CAMBRIDGE OPERATIONS RESEARCH
CENTER

PRELIMINARY RESEARCH ON THE TAXONOMY OF SUBJECT
MATTER. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE NO. 3.

NOV 64 36P RODEBURG, T. K. ; CLUCK, H. D. ;

MURRAY, G. R. , JR. ;

CONTRACT: AF19 628 2407

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR64 618

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-602 660.

DESCRIPTORS: (*TEACHING MACHINES, COMPUTERS),
(*PROGRAMMING (COMPUTERS, TEACHING MACHINES), TRAINING,
EDUCATION, CLASSIFICATION, PROGRAMMING LANGUAGES,
MACHINE TRANSLATION, DATA PROCESSING SYSTEMS, OPERATION
RESEARCH (U)

PRELIMINARY RESEARCH IN THE TAXONOMY OF SUBJECT
MATTER IS REPORTED. THIS WORK IS PART OF A PROGRAM
OF STUDY AIMED AT DEVELOPING COMPUTATIONAL METHODS
USEFUL IN THE PREPARATION OF EDUCATIONAL MATTER FOR
PRESENTATION BY MACHINE. BASIC CONCEPTS OF SUBJECT
STRUCTURE ARE DEFINED. A LANGUAGE PROCESSING
PROGRAM THAT ASSISTS THE CLASSIFICATION OF SUBJECT
MATTER IS DESCRIBED AND ITS USE ILLUSTRATED. AN
EXPERIMENT ON THE VARIATIONS IN SUBJECT STRUCTURE AS
SEEN BY DIFFERENT INDIVIDUALS IS REPORTED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD4610 698

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
REMOTE COMPUTER USAGE: IMPLICATIONS FOR
EDUCATION,

(U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,

JAN 65 13p ROWAN, T. C. I

REPT. NO. SP-1653

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE 1964 TMS-ORSA
JOINT NATIONAL MEETING SEP 64.

DESCRIPTORS: (EDUCATION, COMPUTERS), (COMPUTERS,
EDUCATION), TEACHING MACHINES, SIMULATION, INFORMATION
RETRIEVAL, INSTRUCTORS, REMOTE CONTROL SYSTEMS,
CYBERNETICS

(U)

IDENTIFIERS: TIME SHARING (COMPUTERS), PROGRAMMED
INSTRUCTION

(U)

EXPERIMENTAL OPERATION OF COMPUTERS BY MULTIPLE
USERS LOCATED REMOTELY IS BEING EXTENDED WITH
INCREASING MOMENTUM INTO A VARIETY OF FIELDS.
PROBLEMS WITH EQUIPMENT, COMPUTER PROGRAMS, AND
OTHER SYSTEM ELEMENTS ARE BEING EXAMINED, AND
PRELIMINARY SOLUTIONS ARE BEING TESTED AND EVALUATED.
THE PAPER BRIEFLY REVIEWS THESE DEVELOPMENTS AND
DISCUSSES THE FOLLOWING AND SEVERAL OTHER IMPORTANT
IMPLICATIONS FOR EDUCATION: THE IMPACT ON CLASSROOM
PROCEDURES, CURRICULUM DESIGN, AND PROGRAMMED
INSTRUCTION; THE CONSEQUENT CENTRALIZATION OF
ADMINISTRATIVE SUPPORT AND EFFECTS ON LOCAL AUTONOMY;
THE RESULTING ACCELERATION IN THE INTRODUCTION OF
COMPUTERS IN TECHNICAL EDUCATION AT THE UNIVERSITY,
COLLEGE, AND SECONDARY-SCHOOL LEVEL. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-610 743

ARMY PERSONNEL RESEARCH OFFICE WASHINGTON D C
CODING UPDATED ALPHA-NUMERIC INFORMATION IN
INDIVIDUAL AND GROUP DISPLAYS.

(U)

DEC 64 35P HAMMER, CHARLES H. ; RINGEL,

SEYMOUR I

REPT. NO. TRN-151

PROJ: 2J024701A723

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-600 036, AD-601 973.

DESCRIPTORS: (0) DISPLAY SYSTEMS, LEARNING),
(0) IDENTIFICATION, DISPLAY SYSTEMS), COMMAND AND CONTROL
SYSTEMS, COMMUNICATION THEORY, INFORMATION RETRIEVAL,
DECISION MAKING, REACTION (PSYCHOLOGY), PSYCHOMETRICS,
VISUAL PERCEPTION, ARMY PERSONNEL (U)

THE PRINCIPAL OBJECTIVES WERE TO EVALUATE THE
EFFECTS OF CONSPICUITY CODING OF UPDATED INFORMATION
AND TO COMPARE THE RELATIVE EFFECTS OF INDIVIDUAL AND
GROUP DISPLAYS. SUBJECTS WERE REQUIRED TO LOCATE
CODED AND UNCODED UPDATED ALPHA-NUMERIC INFORMATION.
AMOUNT OF INFORMATION PRESENTED AND AMOUNT OF
INFORMATION UPDATED WERE VARIED. IT WAS FOUND
THAT: (1) MEAN TIME REQUIRED TO LOCATE CODED
UPDATES WAS ABOUT 458 SHORTER THAN THE TIME
REQUIRED TO LOCATE UNCODED UPDATES. (2) LOCATION
TIMES FOR CODED UPDATES WERE ESSENTIALLY EQUAL FOR
INDIVIDUAL AND GROUP DISPLAYS, BUT MEAN TIME REQUIRED
TO LOCATE UNCODED UPDATES WAS ABOUT 158 SHORTER
WITH INDIVIDUAL THAN WITH GROUP DISPLAYS. (3)
USE OF CODED UPDATES RESULTED IN A REDUCTION OF
ERRORS BY ABOUT 50%. (4) ERRORS OF OMISSION
EXCEEDED ERRORS OF COMMISSION BY MORE THAN 3 TO 1.
FINDINGS LEND SUPPORT TO THE INCORPORATION AND USE
OF CODING CAPABILITIES IN CURRENT AND PROPOSED
COMMAND SYSTEMS, WHILE FINDINGS REGARDING
INDIVIDUAL VS GROUP DISPLAYS ARE NOT CONCLUSIVE, THEY
DO SUGGEST THAT IF UNCODED UPDATED INFORMATION IS
PRESENTED, THERE MAY BE A WHOLE SERIES OF INFORMATION
ASSIMILATION TASKS WHICH CAN BE MORE EFFICIENTLY
ACCOMPLISHED WITH INDIVIDUAL THAN WITH GROUP
DISPLAYS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-610 860

ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS
A TECHNIQUE FOR OBTAINING NON-DICHOTOMOUS MEASURES OF
SHORT-TERM MEMORY, (U)

DEC 64 49P BAKER, JAMES D. I

REPT. NO. TR-64-678

PROJ: 4690

TASK: 469003

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-437 917.

DESCRIPTORS: (+MEMORY, PSYCHOMETRICS), (+PSYCHOMETRICS,
MEMORY), BEHAVIOR, RECALL, LEARNING, HUMAN ENGINEERING,
PROBABILITY, DECISION THEORY, PERFORMANCE (HUMAN),
EXPERIMENTAL DATA (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

PERFORMANCE MEASURES IN SHORT-TERM MEMORY (STM)
GENERALLY USE DICHOTOMOUS SCORES AS INDICANTS OF A
PROCESS WHICH IS ASSUMED TO BE CONTINUOUSLY
DISTRIBUTED. THE PURPOSE OF THIS PAPER IS TO
DESCRIBE A TECHNIQUE FOR MEASURING STM WHICH IS NOT
BASED UPON DICHOTOMOUS SCORING CRITERIA. THE
CONCEPTUAL FRAMEWORK OF THIS TECHNIQUE IS DERIVED
FROM CURRENT THEORETICAL DEVELOPMENTS IN THE
MEASUREMENT OF SUBJECTIVE (PERSONAL OR INTUITIVE)
PROBABILITIES. AN STM FEASIBILITY STUDY WAS
CONDUCTED TO ASSESS THIS APPROACH. PERFORMANCE
MEASURES WERE OBTAINED USING A DEVICE THAT PRODUCED
RESPONSE VECTORS. THESE RESPONSE VECTORS WERE
TRANSFORMED INTO EQUIVALENT DICHOTOMOUS SCORES AND
UNCERTAINTY MEASURES. THE DERIVED DICHOTOMOUS DATA
WERE COMPARED TO DATA OBTAINED FROM EQUIVALENT,
DICHOTOMOUSLY SCORED STUDIES. THIS COMPARISON
SHOWED NO DELETERIOUS EFFECTS ON RECALL WHEN THIS
RESPONSE MODE WAS USED. THE UNCERTAINTY MEASURES
SHOWED WELLDEFINED EVIDENCE OF THE EFFECTS OF
PROACTIVE INHIBITION IN THIS TASK. CONFIDENCE
JUDGMENTS WERE DERIVED FROM THE RESPONSE VECTORS.
THESE DERIVED CONFIDENCE JUDGMENTS WERE FOUND TO BE
AT LEAST AS GOOD, IN TERMS OF REALISM OF CONFIDENCE
MEASURES, AS SEVERAL EXISTING TECHNIQUES FOR
OBTAINING CONFIDENCE JUDGMENTS DIRECTLY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-611 057

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER TECHNOLOGY AND APPLICATIONS TO
EDUCATION.

(U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER.

SEP 64 20P

STERNLICHT, I. R. ; ROWAN, T. C. ;

REPT. NO. SP-1850

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE OPERATIONS
RESEARCH SOCIETY OF AMERICA, HONOLULU, HAWAII, 17
SEP 64.

DESCRIPTORS: (*COMPUTERS, REVIEWS), (*EDUCATION,
COMPUTERS), OPERATIONS RESEARCH, MANAGEMENT ENGINEERING,
COMMUNICATION THEORY, DATA PROCESSING SYSTEMS,
DOCUMENTATION, EFFECTIVENESS

(U)

THE ELECTRONIC COMPUTER, MAINSTAY OF AN ADVANCED
INFORMATION PROCESSING TECHNOLOGY, IS DESCRIBED AS
BEING CENTRAL TO THE SOLUTION OF INFORMATION
MANAGEMENT AND CONTROL PROBLEMS IN EDUCATION.
CURRENT APPLICATIONS OF COMPUTER AND INFORMATION
SYSTEM TECHNOLOGY IN SCHOOLS AND COLLEGES ARE
DISCUSSED IN A STATE-OF-THE-ART SUMMARY WHICH
INCLUDES A WIDE RANGE OF COMPUTER ACTIVITIES IN
SCHOOL BUSINESS ACCOUNTING, STUDENT AND FACULTY
PERSONNEL ACCOUNTING, ADMINISTRATION AND GUIDANCE,
SIMULATION AND GAMING, INFORMATION RETRIEVAL, AND
RESEARCH AND INSTRUCTION. PRESENT APPLICATIONS OF
COMPUTER AND INFORMATION SYSTEM TECHNOLOGY TO
EDUCATION ARE VIEWED AS BEING LIMITED IN SCOPE
LARGELY BECAUSE OF THE LACK OF UNDERSTANDING BY
EDUCATORS OF THE POTENTIAL USE OF COMPUTERS RATHER
THAN TECHNICAL PROBLEMS. CONTRIBUTING TO THE
LIMITATIONS IN PRESENT USAGE IS THE FRAGMENTED
APPROACH TO SYSTEM DESIGN. A TOTAL SYSTEMS
APPROACH IS DESCRIBED AS A MORE FRUITFUL MEANS OF
SERVING THE INFORMATION NEEDS OF THE ADMINISTRATOR,
TEACHER, COUNSELOR, STUDENT, AND SCHOOL BUSINESS
OFFICIAL. THE PREDICTION IS MADE THAT CURRENT
RESEARCH AND DEVELOPMENT PROGRAMS IN EDUCATIONAL
INFORMATION SYSTEMS AND COMPUTER TECHNOLOGY COULD
LEAD TO MAJOR CHANGES IN THE FORM AND SUBSTANCE OF
AMERICAN EDUCATION AT BOTH THE SCHOOL AND COLLEGE
LEVEL. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-611 097

ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USE OF AN AUTOMATIC COMPUTER SYSTEM IN TEACHING, (U)

SEP 62 36P BRAUNFELD, P. G. FOSDICK, L. D. I
REPT. NO. R-160
CONTRACT: DA36 039SC85122
TASK: 3 99 01 002
MONITOR: N63 . 13814

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+EDUCATION, COMPUTERS), (+TEACHING
MACHINES, PROGRAMMING (COMPUTERS)), EFFECTIVENESS,
STUDENTS, LEARNING, PERFORMANCE (HUMAN), CYBERNETICS,
ANALYSIS (U)
IDENTIFIERS: PLATO (U)

PLATO II IS AN AUTOMATIC TEACHING DEVICE DESIGNED
TO TEACH A NUMBER OF STUDENTS CONCURRENTLY, BUT
INDEPENDENTLY, BY MEANS OF A SINGLE, CENTRAL, HIGH-
SPEED COMPUTER. ONLY TWO STUDENT SITES HAVE BEEN
CONSTRUCTED THUS FAR. BUT, IN PRINCIPAL, THE NUMBER
OF STUDENTS THAT CAN BE TAUGHT BY PLATO II IS
LIMITED ONLY BY THE CAPACITY AND SPEED OF THE CENTRAL
COMPUTER. THE POWER OF SUCH A COMPUTERBASED
TEACHING SYSTEM STEMS FROM ITS ABILITY TO ASK COMPLEX
QUESTIONS, JUDGE THE STUDENTS' ANSWERS TO THESE
QUESTIONS, AND TAKE AN APPROPRIATE COURSE OF ACTION
ON THE BASIS OF STUDENT RESPONSES. THE COMPUTER
ALSO KEEPS DETAILED AND ACCURATE RECORDS OF STUDENT
PERFORMANCE, WHICH ARE EXTREMELY USEFUL GUIDES TO
IMPROVING COURSE CONTENT. THE PAPER REPORTS IN
SOME DETAIL A STUDY USING PLATO II TO TEACH NINE
UNDERGRADUATE STUDENTS A PORTION OF A COURSE ON
COMPUTER PROGRAMMING. SOME ANALYSIS AND
INTERPRETATION OF DATA GATHERED BY THE COMPUTER
DURING THE STUDY ARE REPRESENTED. THE APPARENT
EFFECTIVENESS OF PLATO II AS A TEACHER, AS WELL AS
THE KINDS OF PROBLEMS ENCOUNTERED IN PREPARING LESSON
MATERIAL FOR AN AUTOMATIC SYSTEM, IS DISCUSSED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /DHK08

AD-611 334

GRAFIX INC ALBUQUERQUE N MEX
A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM FOR A
DIGITAL COMPUTER, PART I, SECTIONS I AND II. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
DEC 64 99P BUSSEY, GENE R. ;
CONTRACT: AF49 638 1203
MONITOR: AFOSR , 65-0275 P1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-611 335.

DESCRIPTORS: (+LEARNING, HUMANS), (+PROGRAMMING
(COMPUTERS), PERCEPTION (PSYCHOLOGY)), (+PERCEPTION
(PSYCHOLOGY), SIMULATION), (+ARTIFICIAL INTELLIGENCE,
PROGRAMMING (COMPUTERS)), DIGITAL COMPUTERS, MEMORY,
MOTOR REACTIONS, MACHINES, CYBERNETICS (U)
IDENTIFIERS: MOTOR LEARNING (U)

THE GOAL OF THIS RESEARCH EFFORT IS THE ULTIMATE
REALIZATION OF A PRACTICAL ADAPTIVE SYSTEM WHICH
WOULD BE AN ADEQUATE BASIS FOR A ROBOT WITH MANLIKE
CAPABILITIES--SAY, ONE FILLING THE ROLE OF MAN IN AN
UNHOSPITABLE SPACE ENVIRONMENT. CONSEQUENTLY, AND
EFFORT HAS BEEN MADE FROM THE VERY BEGINNING TO
INCORPORATE THE RUDIMENTS OF ALL THE MAJOR SUBSYSTEMS
THOUGHT NECESSARY AND TO ATTAIN A REALISTIC DRIVE
SUBSYSTEM OF THE COMPLEXITY BELIEVED ESSENTIAL TO AN
AUTOMATION WHICH NOT ONLY HAS A VARIETY OF JOBS TO DO
BUT MUST IN ADDITION IMPROVE ITSELF IN GENERAL AND
TAKE CARE OF ITS PHYSICAL NEEDS. BECAUSE SOME
SUCCESSFUL WORK HAD ALREADY BEEN DONE IN THE AREA OF
PERCEPTION--PARTICULARLY VISUAL PATTERN AND SPEECH
RECOGNITION--AND BECAUSE THE BULK OF RESEARCH IN THE
FIELD IS BEING DONE IN THE PERCEPTUAL AREA, IT WAS
DECIDED TO CONCENTRATE ON THE EFFECTOR OR MOTOR SIDE
OF THE ADAPTIVE SYSTEM PROBLEM, WITH THE PERCEPTUAL
PROCESSES BEING MERELY SIMULATED AT FIRST BY ANY
PRACTICAL MEANS AT HAND. ULTIMATELY, IT IS PLANNED
THAT ADAPTIVE PROCESSES WILL BE PROGRAMMED FOR SUCH
PERCEPTUAL PROCESSES UNTIL FINALLY A COMPLETE SYSTEM
INCORPORATING ADAPTIVE PROCESSES FOR ALL SENSORI-
MOTOR AND CORTICAL PROCESSES WOULD BE REALIZED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-611 335

GRAFIX INC ALBUQUERQUE N MEX

A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM FOR A
DIGITAL COMPUTER, PART II, SECTIONS III AND IV. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,

DEC 64 107p BUSSEY, GENE R. ;

CONTRACT: AF49 63R 1203

MONITOR: AFOSR , 65-0275 P2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION. REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE. SEE ALSO AD-611 334.

DESCRIPTORS: (*LEARNING, HUMANS), (*ARTIFICIAL
INTELLIGENCE, PROGRAMMING (COMPUTERS)), (*PROGRAMMING
(COMPUTERS), PERCEPTION (PSYCHOLOGY)), (*PERCEPTION
(PSYCHOLOGY), SIMULATION); DIGITAL COMPUTERS, MEMORY,
MOTOR REACTIONS, MACHINES, CYBERNETICS (U)
IDENTIFIERS: MOTOR LEARNING (U)

THE OBJECT OF THE RESEARCH HAS BEEN TO ACHIEVE A
WORKING PROGRAM THAT EFFECTIVELY DEMONSTRATES A
GENERAL ABILITY TO LEARN NON-SPECIFIC MOTOR TASKS.
THUS, THE REPORT CONSISTS OF A WORKING COMPUTER
PROGRAM. THE PROGRAM IS DESCRIBED IN DETAIL WITH
EXPLANATORY TEXT KEYED TO FLOW CHARTS. THE PROGRAM
IS GIVEN, ALONG WITH INSTRUCTIONS FOR RUNNING IT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 434

STANFORD UNIV CALIF DEPT OF COMPUTER SCIENCE
AUTOMATIC GRADING PROGRAMS, (U)

FEB 65 21P FORSYTHE, GEORGE E. WIRTH,

NIKLAUS ;

REPT. NO. CS-17

CONTRACT: NONR22537 GRANT ,GP948

PROJ: NR044 211

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED TO THE NATIONAL MEETING OF
THE ASSOCIATION FOR COMPUTING MACHINERY,
PHILADELPHIA, PA., 27 AUG 64, UNDER THE TITLE
'AUTOMATIC MACHINE GRADING PROGRAMS'.

DESCRIPTORS: (*COMPUTERS, TEACHING MACHINES), (*TEACHING
MACHINES, COMPUTERS), PROGRAMMING (COMPUTERS), NUMERICAL
ANALYSIS, TRAINING DEVICES, PROGRAMMING LANGUAGES,
EDUCATION (U)

IDENTIFIERS: ALGOL PROGRAMS (U)

THE ALGOL GRADER PROGRAMS ARE PRESENTED FOR THE
COMPUTER EVALUATION OF STUDENT ALGOL PROGRAMS.
ONE IS FOR A BEGINNER'S PROGRAM; IT FURNISHES
RANDOM DATA AND CHECKS ANSWERS. THE OTHER PROVIDES
A SEARCHING TEST OF THE RELIABILITY AND EFFICIENCY OF
A ROOTFINDING PROCEDURE. THERE IS A STATEMENT OF
THE ESSENTIAL PROPERTIES OF A COMPUTER SYSTEM, IN
ORDER THAT GRADER PROGRAMS CAN BE EFFECTIVELY USED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 542

SYSTEM RESEARCH LTD RESEARCH LABS RICHMOND (ENGLAND)
A TYPICAL ADAPTIVELY CONTROLLED EXPERIMENT IN
PERCEPTUAL DISCRIMINATION, (U)

NOV 64 9P PASK, GORDON ; LEWIS, B. N. ;

WATTS, D. ;

CONTRACT: AF61 052 640

MONITOR: AFOSR , 65-0291

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PERCEPTION (PSYCHOLOGY), PSYCHOMETRICS),
CYBERNETICS, BIONICS, LEARNING, REACTION (PSYCHOLOGY),
PERFORMANCE (HUMAN), PERFORMANCE TESTS,
PSYCHOPHYSIOLOGY, TEACHING MACHINES, SIGNALS, LIGHT,
CONTROL, TIME, GREAT BRITAIN (U)

THE REPORT CONCERNS A DEMONSTRATION OF AN
ADAPTIVELY CONTROLLED PERCEPTUAL DISCRIMINATION
EXPERIMENT. THE ADAPTATION RULE CHOSEN FOR
DEMONSTRATION PURPOSES IS ALMOST ABSURDLY SIMPLE AND
A RATHER MORE ELABORATE SYSTEM IS USED IN THE MAIN
EXPERIMENTAL PROGRAMME. THE CHIEF AIM IS TO PROVIDE
A READILY MANIPULABLE APPLICATION OF THIS
EXPERIMENTAL METHOD AND TO SUGGEST FURTHER
APPLICATIONS. THIS METHOD HAS BEEN USED CHIEFLY IN
CONNECTION WITH EXPLICIT LEARNING EXPERIMENTS OR IN
ADAPTIVELY CONTROLLED TEACHING. IN THE PRESENT
ARRANGEMENT THE LEARNING THAT OCCURS IS IMPLICIT AND,
IN A SENSE, IS AN UNWANTED EFFECT. THE ADAPTIVE
SYSTEM CAN BE SAID TO COMPENSATE FOR THE EFFECTS OF
LEARNING AND TO APPROXIMATE A STATIONARY MEASUREMENT
CONDITION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-611 935

PURDUE UNIV LAFAYETTE IND SCHOOL OF ELECTRICAL
ENGINEERING

LEARNING CONTROL SYSTEMS,

(U)

63 26P FU,K. S. ;

CONTRACT: AF AFOSR62 351

MONITOR: AFOSR . 65-0326

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN MONO. COMPUTER AND
INFORMATION SCIENCES, N.P., N.D., P318-43 (COPIES NOT
AVAILABLE TO DDC CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*CONTROL SYSTEMS, LEARNING), (*BIONICS,
LEARNING), (*ARTIFICIAL INTELLIGENCE, CONTROL SYSTEMS),
PATTERN RECOGNITION, COMPUTER STORAGE DEVICES,
CYBERNETICS, PERFORMANCE (ENGINEERING), OPTIMIZATION,
SIMULATION, TRAINING, DESIGN (U)
IDENTIFIERS: LEARNING MACHINES (U)

AN INFORMAL INTRODUCTION OF LEARNING CONTROL
SYSTEMS WAS PRESENTED. A CLASS OF LEARNING CONTROL
SYSTEMS WAS DESCRIBED IN DETAIL AND THE BASIC
FUNCTIONS OF A LEARNING CONTROLLER WERE DISCUSSED.
TWO EXAMPLE BASIC FUNCTIONS OF A LEARNING
CONTROLLER WERE DISCUSSED. TWO EXAMPLE SYSTEMS
WERE GIVEN TO ILLUSTRATE THE PREPARED APPROACH. A
COMPLETE ANALYTIC DESIGN PROCEDURE OF LEARNING
CONTROL SYSTEMS IS UNDER INVESTIGATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-612 738

PITTSBURGH UNIV PA

REPETITION AND SPACED REVIEW IN PROGRAMED
INSTRUCTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 62.

DEC 64 37p

REYNOLDS, JAMES H. IGLASER,

ROBERT ABMA, JOHN S. MORGAN, ROSS L. ;

CONTRACT: AF33 616 7175

PROJ: 1710

TASK: 171007

MONITOR: AMRL ,

TR-64-128

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, EFFECTIVENESS), (•RETENTION,
ACHIEVEMENT TESTS), RECALL, LEARNING, TRAINING,
INTELLIGENCE TESTS, STUDENTS, LINEAR PROGRAMMING,
CORRELATION TECHNIQUES

(U)

IDENTIFIERS: PROGRAMMED INSTRUCTION

(U)

THE EFFECTS OF REPETITION AND SPACED REVIEW IN
PROGRAMED INSTRUCTION WERE STUDIED. EXPERIMENTS 1
AND 2 COVERED A ONE-SEMESTER COURSE IN GENERAL
SCIENCE AT THE JUNIOR HIGH SCHOOL LEVEL.
IN EXPERIMENT 3, A 1280-FRAME PORTION OF THE
TOTAL COURSE WAS USED. IN EXPERIMENTS 1 AND 2,
COMPARISONS WERE MADE AMONG (A) A CONVENTIONAL
COURSE, (B) A REGULAR LINEAR VERSION OF THE
PROGRAM, AND (C) A SPIRAL VERSION OF THE PROGRAM.
THE RESULTS INDICATE THAT THE PROGRAMED COURSE WAS
AT LEAST AS EFFECTIVE AS THE CONVENTIONAL INSTRUCTION
IN TERMS OF BOTH LEARNING AND RETENTION AFTER 13
WEEKS. THE LINEAR PROGRAM WAS SUPERIOR TO
CONVENTIONAL INSTRUCTION ON SOME MEASURES. THE
SPIRAL PROGRAM OFFERED FEW, IF ANY, ADVANTAGES OVER
THE REGULAR LINEAR PROGRAM. EXPERIMENT 3 ALLOWED A
MORE PRECISE EVALUATION OF THE SEPARATE EFFECTS OF
REPETITION AND SPACED REVIEW. SPACED REVIEW
PRODUCED SIGNIFICANT INCREASES IN LEARNING WHICH
PERSISTED, AND EVEN INCREASED, THROUGH A 3-WEEK
RETENTION INTERVAL. REPETITION DID NOT PRODUCE
INCREASED LEARNING OR RETENTION. THE GENERAL
CONCLUSIONS ARE: (A) REPETITION OF INSTRUCTIONAL
MATERIALS ABOVE THE USUAL LEVEL IN A LINEAR PROGRAM
IS NOT BENEFICIAL; (B) SPACED REVIEW IS
POTENTIALLY BENEFICIAL; AND (C) SOME TECHNIQUES
OF OBTAINING SPACED REVIEW, EG. SPIRAL PROGRAMING,
MAY OFFER DISADVANTAGES THAT EQUAL OR OUTWEIGH THE
POTENTIAL ADVANTAGES OF SPACED REVIEW. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-612 946

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AUTOMATION, CYBERNETICS, AND EDUCATION, (U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,

MAR 65 15P COULSON, JOHN E. ;
REPT. NO. SP-1964

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE CONFERENCE ON
CYBERNETICS IN THE SCHOOL, HELD AT THE UNIVERSITY OF
BRITISH COLUMBIA, VANCOUVER, 20 FEB 65.

DESCRIPTORS: (*CYBERNETICS, EDUCATION), (*EDUCATION,
CYBERNETICS), DATA PROCESSING SYSTEMS, TEACHING
MACHINES, COMPUTERS, STUDENTS, DECISION MAKING,
MANAGEMENT PLANNING, INFORMATION RETRIEVAL, AUTOMATIO(U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THIS PAPER PRESENTS AN OVERVIEW OF RECENT
DEVELOPMENTS IN AUTOMATION, CYBERNETICS, AND DATA-
PROCESSING TECHNOLOGY THAT HAVE DIRECT RELEVANCE FOR
THE FUTURE OF EDUCATION. THE DISCUSSION FOCUSES ON
THE USE OF COMPUTERS TO PROVIDE INDIVIDUALIZED
INSTRUCTION, BUT CONSIDERATION IS ALSO GIVEN TO THE
APPLICATION OF DATA-PROCESSING EQUIPMENT TO PROCESS
FISCAL ACCOUNTS AND ADMINISTRATIVE RECORDS, TO
PROVIDE AUTOMATED ANALYSIS AND ASSESSMENT OF STUDENT
CUMULATIVE RECORDS, AND TO ASSIST IN ADMINISTRATIVE
PLANNING. RESEARCH AT SDC IS USED TO ILLUSTRATE
THESE DEVELOPMENTS AND THEIR RELEVANCE TO EDUCATION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-612 955

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC RESEARCH AND TECHNOLOGY DIVISION EXTERNAL
PUBLICATIONS 1961-1964.

(U)

JAN 65 21P BAUM, C. HEROLD, V. P. ;
REPT. NO. TM-698/064/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (OPERATIONS RESEARCH, SYSTEMS
ENGINEERING), (SYSTEMS ENGINEERING, BIBLIOGRAPHIES),
(DATA PROCESSING SYSTEMS, SYSTEMS ENGINEERING),
(ARTIFICIAL INTELLIGENCE, SYSTEMS ENGINEERING),
REPORTS, PERIODICALS, CLASSIFICATION, INFORMATION
RETRIEVAL, PROGRAMMING (COMPUTERS), EDUCATION, DECISION
MAKING, PATTERN RECOGNITION, PROGRAMMING LANGUAGES,
BIONICS

(U)

IDENTIFIERS: MAN-MACHINE SYSTEMS

(U)

A LIST IS PRESENTED OF SDC'S RESEARCH AND
TECHNOLOGY DIVISION PUBLICATIONS IN JOURNALS,
PROCEEDINGS AND BOOKS FROM JANUARY 1961 THROUGH
DECEMBER 1964. THE BIBLIOGRAPHY DOES NOT INCLUDE
MINOR EXTERNAL PUBLICATIONS-BOOK REVIEWS, ABSTRACTS,
RESEARCH SUMMARIES, NOR THE SEVERAL HUNDRED PAPERS
PUBLISHED IN SDC DOCUMENT SERIES DURING THIS
PERIOD. (AUTHORS)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-612 999

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EFFECTS OF INDIVIDUALIZED INSTRUCTION ON
TESTING, (U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
FEB 65 12P COGSWELL, JOHN F. ; COULSON,
JOHN E. ;
REPT. NO. SP-1829

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED ON FEBRUARY 11, 1965, TO
THE NATIONAL COUNCIL ON MEASUREMENT IN EDUCATION, IN
CHICAGO, ILL.

DESCRIPTORS: (+EDUCATION, PROGRAMMING (COMPUTERS)),
(+TRAINING DEVICES, AUTOMATIC), PERFORMANCE (HUMAN),
TESTS, ATTITUDES, LEARNING, STUDENTS, TEACHING
MACHINES (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, BRANCHING
TESTS (U)

PROGRAMMED INSTRUCTION AND OTHER INDIVIDUAL STUDY
METHODS ARE BRINGING MAJOR CHANGES IN MEASUREMENT
PRACTICES. RECENT EXPERIMENTAL WORK WITH COMPUTER-
BASED PROGRAMMED INSTRUCTIONAL SYSTEMS HAS
DEMONSTRATED THE TECHNOLOGICAL FEASIBILITY OF
AUTOMATED DIAGNOSTIC PROCEDURES THAT PROVIDE
INCREASED SENSITIVITY AND RESPONSIVENESS TO STUDENT
NEEDS. THROUGH CONTINUOUS ANALYSIS OF SEVERAL
DIFFERENT MEASURES OF EACH STUDENT'S PROGRESS AND
THROUGH INDIVIDUALIZED CONTROL OF THE INSTRUCTIONAL
SEQUENCE, THE COMPUTER'S CONTROL DECISIONS CAN BE
BASED ON RULES SYNTHESIZING (A) MEASURES OF THE
STUDENT'S MOMENT-TO-MOMENT SKILL PERFORMANCE LEVEL AND
ATTITUDE TOWARD THE LEARNING SITUATION, AND (B)
RECORDS REFLECTING MORE STABLE, PERVASIVE
CHARACTERISTICS, SUCH AS TESTS OF INTELLIGENCE,
APTITUDE, PERSONALITY AND INTERESTS. IF THE
DIAGNOSTIC CAPABILITIES OFFERED BY THESE
TECHNOLOGICAL DEVELOPMENTS ARE TO BE APPLIED IN
EDUCATION, FURTHER RESEARCH MUST BE DIRECTED TOWARD
THE TEACHING/TESTING PROCESS IN PROGRAMMED
INSTRUCTION. CRITICAL RESEARCH QUESTIONS INCLUDE:
(1) WHAT DIAGNOSTIC MEASURES MOST ACCURATELY
REFLECT IMMEDIATE LEARNING NEEDS, (2) HOW OFTEN
SHOULD EACH MEASURE BE SAMPLED DURING THE
INSTRUCTION, (3) BY WHAT RULES SHOULD THESE
MEASURES BE COMBINED TO DETERMINE BRANCHINGS, (4)
HOW CAN THE SUCCESS OF BRANCHING PROCEDURES BEST BE
EVALUATED. (AUTHORS) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-613 259

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATIONS OF COMPUTERS AND INFORMATION PROCESSING
SYSTEMS IN EDUCATION. (U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER.

MAR 65 34p O'TOOLE, JOHN F. , JR;
REPT. NO. SP-1980

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, EDUCATION),
(*COMPUTERS, EDUCATION), (*EDUCATION, DATA PROCESSING
SYSTEMS), INFORMATION RETRIEVAL, TEACHING MACHINES,
THEORY, REVIEWS (U)

THE PURPOSE OF THIS REPORT IS TO PROVIDE
INFORMATION FOR THE UNINITIATED EDUCATOR AND
INTERESTED LAYMAN; IN ESSENCE, TO PLACE ELECTRONIC
DATA PROCESSING (EDP) IN EDUCATION IN BOTH FACTUAL
AND SPECULATIVE PERSPECTIVE. THE REPORT IS INTENDED
FOR THE EDP SPECIALIST ONLY TO THE EXTENT THAT SOME
UNDERSTANDING OF CURRENT EDUCATIONAL PROBLEMS WILL
HELP HIM TO ASSIST EDUCATORS WITH THE DATA PROCESSING
ASPECTS OF THESE PROBLEMS. THE COMPLETE REPORT TO
THE U. S. OFFICE OF EDUCATION ('APPLICATION OF
ELECTRONIC DATA PROCESSING METHODS IN
EDUCATION'), OF WHICH THIS PAPER IS ONLY A
CHAPTER, REPRESENTS A STUDY OF USES, PROBLEMS, ISSUES
AND PROMISING DIRECTIONS OF RESEARCH AND DEVELOPMENT
IN ELECTRONIC DATA PROCESSING IN EDUCATION. THE
SCOPE OF PRESENT COMPUTER AND EDP SCHOOL
APPLICATIONS IS OUTLINED, INCLUDING EXPLANATIONS OF
TECHNICAL TERMS, FACILITIES, AND EQUIPMENT CURRENTLY
IN SCHOOL USE. SUCCEEDING PAGES PROVIDE BRIEF
DESCRIPTIONS OF ILLUSTRATIVE APPLICATIONS ARRANGED IN
THE FOLLOWING SUBSTANTIVE CATEGORIES: (1)
EDUCATIONAL INFORMATION SYSTEMS, (2) RESEARCH
APPLICATIONS, AND (3) COMPUTER EDUCATION
PROGRAMS. THE INTENT HERE IS TO PROVIDE A SAMPLING
OF RESOURCES CURRENTLY AVAILABLE IN EDUCATIONAL
SETTINGS AND THEIR UTILIZATION AT THE TIME OF THIS
REPORT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-613 286

WESTINGHOUSE ELECTRIC CORP BALTIMORE MD SURFACE DIV
RESEARCH ON HEURISTIC PROBLEM SOLVING MACHINES. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR MAR 64-MAR 65.

MAR 65 54P

REPT. NO. WGD-38093 ,MDE-4941

CONTRACT: NONR448300

PROJ: NR348 008

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DECISION MAKING, SIMULATION), (*LEARNING,
ARTIFICIAL INTELLIGENCE), (*COMPUTERS, DECISION MAKING),
REASONING, CYBERNETICS, BIONICS, DECISION THEORY, GAME
THEORY, PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: LEARNING MACHINES, PROBLEM SOLVING (U)

TWO APPROACHES TO DEVELOP LEARNING MACHINES ARE
DISCUSSED. ONE APPROACH IS THROUGH BIONICS, IN
WHICH EMPHASIS IS PLACED UPON DEVELOPING NEURON
MODELS AND NEURAL NETS WITH THE AID OF KNOWLEDGE
ABOUT ANIMAL SENSORY MECHANISMS. THE OTHER
APPROACH IS THROUGH THE DEVELOPMENT OF PROGRAMS WITH
A SELF-ORGANIZING CAPABILITY. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 014

PITTSBURGH UNIV PA

PROGRAMMING METHOD AND RESPONSE MODE IN A VISUAL ORAL
TASK. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR OCT 61-OCT 63.

DEC 64 21p CSANYI, ATTILA P. IGLASER,

ROBERT REYNOLDS, JAMES H. I

CONTRACT: AF33 616 7175 .0E2 10 057

PROJ: 1710

TASK: 171007

MONITOR: AMRL , TR-64-129

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TRAINING DEVICES, TEACHING MACHINES),
(•LEARNING, TEACHING MACHINES), TRAINING, PERFORMANCE
(HUMAN), CONDITIONED REFLEX, ACHIEVEMENT TESTS,
LANGUAGE, VERBAL BEHAVIOR, PUNCHED CARDS, RETENTION (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

PROGRAMMING METHODS AND RESPONSE MODES WERE
INVESTIGATED TO DETERMINE EFFECTIVE TRAINING METHODS.
THE IDENTIFICATION AND PRONUNCIATION OF PHONETIC
SYMBOLS WERE TAUGHT BY TWO DIFFERENT PROGRAMING
METHODS AND TWO DIFFERENT RESPONSE MODES. THE
PROGRAMING METHOD FEATURED EITHER PROMPTING OR
CONFIRMATION, AND THE RESPONSE MODE WAS EITHER OVERT
OR COVERT. ACHIEVEMENT WAS MEASURED ON BOTH A
MULTIPLE CHOICE TEST AND A TEST REQUIRING OVERT ORAL
RESPONSES. CONSIDERABLE VARIATION OCCURRED AMONG
THE TEST SCORES FOR EACH LEARNING CONDITION.
DIFFERENCES AMONG THE CONDITIONS, TENDING TO
INDICATE THE SUPERIORITY OF OVERT RESPONDING AND OF
CONFIRMATION, WERE SIGNIFICANT ON ONLY ONE CASE,
OVERT RESPONDING WAS SUPERIOR FOR RETENTION WHEN
MEASURED BY TESTS REQUIRING OVERT ORAL RESPONSES.
THE PROMPTING METHOD COUPLED WITH THE COVERT
RESPONSE MODE TENDED TO PRODUCE POORER LEARNING AND
RETENTION THAN THE OTHER CONDITIONS, BUT IT REQUIRED
ONLY 30 TO 50 PERCENT AS MUCH LEARNING TIME AS THE
OTHER CONDITIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHX08

AD-614 228

PENNSYLVANIA UNIV PHILADELPHIA MOORE SCHOOL OF
ELECTRICAL ENGINEERING
THE EVALUATION OF TECHNIQUES AND DEVICES AS APPLIED
TO PROBLEM SOLVING. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

FEB 65 113P RUBINOFF, MORRIS ; WHITE, J. F.

, JR. ; LOEV, DAVID ; BLUMBERG, DONALD F. ;

CONTRACT: AF30 602 3065

PROJ: 4594

TASK: 459404

MONITOR: RADC , TDR-64-402

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, DECISION
MAKING), (*DECISION MAKING, HUMANS), COMPUTERS,
PERFORMANCE (HUMAN), GAME THEORY, INFORMATION RETRIEVAL,
MATHEMATICAL MODELS, LEARNING, GROUP DYNAMICS,
PERSONALITY, PROBABILITY (U)
IDENTIFIERS: PROBLEM SOLVING, PREDICTION, CREATIVE
THINKING (U)

THE PROBLEM OF FORECASTING TECHNOLOGICAL CHANGE IS
INVESTIGATED. MACHINES AND COMPUTER PROGRAMS
HAVING 'PROBLEM SOLVING' CAPABILITIES ARE EXAMINED TO
DETERMINE THEIR USEFULNESS IN AIDING OR REPLACING THE
HUMAN FORECASTER. THE LITERATURE ON HUMAN PROBLEM
SOLVING WAS ALSO REVIEWED. THE FOLLOWING
CONCLUSIONS WERE REACHED: (1) THE NATURE OF THE
FORECASTING PROBLEM PRECLUDES THE USE OF COMPUTER-
TYPE PROBLEM SOLVERS DEVELOPED TO DATE, AND (2)
THE APPLICATION OF INFORMATION SCIENCE TECHNIQUES,
NAMELY: DESCRIPTORS REPRESENTING TECHNOLOGICAL
CONCEPTS, THE FORCES ACTING TO CHANGE THE TECHNOLOGY
AND THE LAWS GOVERNING THE CHANGE, APPEAR TO OFFER
THE MOST PROMISE IN ASSISTING THE HUMAN FORECASTER.
ACCORDINGLY, A QUASIMATHEMATICAL MODEL WAS
DEVELOPED USING MATRIX NOTATION TO DESCRIBE A
TECHNOLOGY. AN EXAMPLE OF A FORECAST OF COMPUTER
TECHNOLOGY MADE SEVERAL YEARS AGO IS INCLUDED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 316

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF

SELF-EVALUATIONAL RESPONDING AND TYPOGRAPHICAL
CUEING: TECHNIQUES FOR PROGRAMING SELF-INSTRUCTIONAL
READING MATERIALS, (U)

FEB 64 9P HERSHBERGER, WAYNE I
CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JOURNAL OF EDUCATIONAL
PSYCHOLOGY V55 N5 P288-96 1964 (COPIES NOT AVAILABLE TO
DDC OR CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (LEARNING, READING), (EDUCATION, APPLIED
PSYCHOLOGY), RETENTION, REACTION (PSYCHOLOGY), STUDENTS,
PSYCHOMETRICS, FACTOR ANALYSIS, EFFECTIVENESS (U)
IDENTIFIERS: TYPOGRAPHICAL CUEING, CUES (STIMULI),
PROGRAMMED INSTRUCTION, EVALUATION (U)

THE STUDY ASSESSED THE EFFECTS OF COMPLEX
TYPOGRAPHICAL CUEING (HIGH-LIGHTING ESSENTIAL
LESSON CONTENT) AND SELF-EVALUATIONAL RESPONSE ITEMS
(QUIZZING THE READER ON THE ESSENTIAL CONTENT)
UPON THE LEARNING AND RETENTION OF BOTH ENRICHMENT
AND ESSENTIAL LESSON CONTENT FOR BOTH DISCURSIVELY
AND TERSELY WRITTEN TEXTS. A TOTAL OF 160
PRETESTED FIFTH-GRADE STUDENTS READ LESSONS ON
HISTORY AND SCIENCE AND TOOK IMMEDIATE AND DELAYED
POSTTESTS ON EACH TOPIC. ANALYSIS OF GAIN SCORES
REVEALED THAT: (A) SELF-EVALUATIONAL RESPONSE
ITEMS RELIABLY ENHANCE LEARNING AND RETENTION OF
ESSENTIAL CONTENT WITHOUT DETRACTING FROM ENRICHMENT
CONTENT, (B) COMPLEX TYPOGRAPHICAL CUEING FAILS
TO INCREASE LEARNING OF EITHER TYPE OF CONTENT, AND
(C) OMITTING THE ENRICHMENT CONTENT (I.E.,
VERSE TEXT) REDUCES READING TIME BUT NOT AMOUNT
LEARNED. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-614 317

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
TYPOGRAPHICAL CUIING IN CONVENTIONAL AND PROGRAMED
TEXTS, (U)

MAR 64 6P HERSHBERGER, WAYNE A. ; TERRY,

DONALD F. ;

CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN JOURNAL OF APPLIED
PSYCHOLOGY V49 N1 P55-60 FEB 1965 (COPIES NOT
AVAILABLE TO DDC OR CLEARINGHOUSE CUSTOMERS).

DESCRIPTORS: (*LEARNING, READING), (*READING, TRAINING
DEVICES), (*TRAINING DEVICES, READING), RETENTION,
EDUCATION, STUDENTS, PERFORMANCE TESTS, ERRORS, ANALYSIS
OF VARIANCE, APPLIED PSYCHOLOGY (U)

IDENTIFIERS: TYPOGRAPHICAL CUEING, PROGRAMMED
INSTRUCTION (U)

THIS STUDY ASSESSED THE INSTRUCTIONAL EFFECTIVENESS
OF SIMPLE AND COMPLEX FORMS OF TYPOGRAPHICAL CUIING IN
BOTH CONVENTIONAL AND PROGRAMED TEXTS. A TOTAL OF
118, PRETESTED, 8TH-GRADE STUDENTS READ AN 8TH-GRADE
HISTORY LESSON AND WERE LATER RETESTED. ANALYSIS
OF GAIN SCORES REVEALED THAT; (A) SIMPLE
TYPOGRAPHICAL CUIING DISTINGUISHING CORE FROM
ENRICHMENT CONTENT ENHANCES THE RATIO OF IMPORTANT TO
UNIMPORTANT CONTENT LEARNED WITHOUT AFFECTING THE
TOTAL AMOUNT LEARNED; (B) COMPLEX TYPOGRAPHICAL
CUIING DISTINGUISHING 3 CATEGORIES OF LESSON CONTENT
FAILS TO INCREASE LEARNING OF EITHER CORE OR
ENRICHMENT CONTENT; (C) THE PROGRAMED OR QUIZZED
TEXT IS MORE EFFECTIVE THAN THE CONVENTIONAL TEXT;
AND (D) THE EFFECTS OF SIMPLE TYPOGRAPHICAL CUIING
AND PROGRAMED QUIZZING APPEAR INDEPENDENT AND
ADDITIVE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 696

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS AND DECISION-MAKING IN EDUCATION, (U)

DESCRIPTIVE NOTE: A PROFESSIONAL PAPER,

MAR 65 20p CAFFREY, JOHN G. ;

REPT. NO. SP-2002

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE SDC/UNIV. OF
GEORGIA CONFERENCE, ATHENS, MAR 29-31, 1965.

DESCRIPTORS: (COMPUTERS, DECISION MAKING), (DECISION
MAKING, COMPUTERS), PROGRAMMING (COMPUTERS), EDUCATION,
MANAGEMENT ENGINEERING, DATA PROCESSING SYSTEMS,
AUTOMATION, PROBABILITY (U)

COMPUTERS ARE TOOLS TO HELP MAN THINK. THEY DO
NOT, STRICTLY SPEAKING, EVER MAKE DECISIONS. WE
MAKE THE DECISIONS WHEN WE WRITE THE PROGRAMS WHICH
SPECIFY WHAT IS TO BE DONE UNDER EACH FORESEEABLE
CIRCUMSTANCE. IN SO DOING, OUR VALUES ARE EXPOSED--
TO OUR OWN VIEW AND TO OTHERS. SOME OF THE
RESISTANCE TO THE USE OF COMPUTERS IN THE MANAGEMENT
OF HUMAN INSTITUTIONS MAY ARISE FROM ANXIETY ABOUT
THE COMPUTER IMPERATIVE: THE NEED TO MAKE EXPLICIT
THE BASES UPON WHICH WE INTEND TO TAKE ACTIONS AND TO
SELECT AMONG ALTERNATIVES. HOWEVER, PROPERLY
UNDERSTOOD, THIS IMPERATIVE MAY IN THE LONG RUN NOT
ONLY REQUIRE BUT PERMIT MORE CREATIVE AND FLEXIBLE
MANAGEMENT AND CONTROL SYSTEMS IN EDUCATION, WITH THE
OBJECT OF IMPROVING OUR CAPACITY TO PREDICT
CONSEQUENCES AND TO RESPOND TO RAPIDLY CHANGING
CIRCUMSTANCES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 697

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
FIVE MAJOR OBSTACLES TO THE GROWTH OF PROGRAMMED
INSTRUCTION IN EDUCATION, (U)

APR 65 10P COULSON, JOHN E. ;
REPT. NO. SP-1944

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL CONVENTION
OF THE NATIONAL SOCIETY FOR PROGRAMMED INSTRUCTION,
PHILADELPHIA, MAY 6, 1965.

DESCRIPTORS: (•EDUCATION, TRAINING), (•TRAINING DEVICES,
EDUCATION), COMPUTERS, LEARNING (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE OBSTACLES DISCUSSED ARE: (1) A LACK OF
UNDERSTANDING IN THE EDUCATIONAL COMMUNITY OF WHAT IT
MEANS TO DEFINE EDUCATIONAL OBJECTIVES IN OPERATIONAL
TERMS, (2) THE TENDENCY OF PROGRAM PRODUCERS AND
SCHOOL ADMINISTRATORS TO FORCE PROGRAMS ON THE
TEACHERS WITHOUT ENLISTING THE TEACHERS' SUPPORT OR
TELLING THEM HOW THE MATERIALS SHOULD BE USED IN THE
ONGOING CLASSROOM, (3) TOO STEREOTYPED AND
UNIMAGINATIVE A VIEW OF PROGRAMMED INSTRUCTION ON THE
PART OF PROGRAM WRITERS, (4) LACK OF
CONSIDERATION, BY PROGRAM PRODUCERS AND USERS ALIKE,
OF THE IMPACT THAT PROGRAMMED INSTRUCTION MUST HAVE
ON ALL PARTS OF A SCHOOL SYSTEM IF THE POTENTIAL
ADVANTAGES OF INDIVIDUALIZED PROGRESS ARE TO BE
REALIZED, AND (5) LACK OF PROPER LESSON SHAPING
BY EMPIRICAL CUT-AND-FIT TECHNIQUES, OF THE
PROGRAMMED MATERIALS BEING PRODUCED AND SOLD TODAY.
GENERAL APPROACHES TO ELIMINATING THESE OBSTACLES
ARE SUGGESTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-614 698

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE SYSTEMS APPROACH, TECHNOLOGY AND THE SCHOOL, (U)
APR 65 33p CARTER, LAUNOR ISILBERMAN,

HARRY I
REPT. NO. SP-2025

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPEECH AT CONFERENCE TO MARK THE
DEDICATION OF BEN D. WOOD HALL, MAY 11, 1965.
EDUCATIONAL TESTING SERVICE, PRINCETON, N. J.

DESCRIPTORS: (•EDUCATION, SYSTEMS ENGINEERING);
(•SYSTEMS ENGINEERING, EDUCATION), TRAINING, COMPUTERS,
TEST METHODS, TEACHING MACHINES, SIMULATION (U)
IDENTIFIERS: TECHNOLOGY, TIME SHARING (COMPUTERS) (U)

DISCUSSES THE IDEAL SCHOOL AND THE DEFICIENCIES IN
THE PRESENT EDUCATIONAL SYSTEM. DESCRIBES SOME OF
THE RECENT ADVANCES IN EDUCATIONAL TECHNOLOGY, USING
AS A POINT OF REFERENCE THE EDUCATIONAL RESEARCH AND
DEVELOPMENT AT THE SYSTEM DEVELOPMENT
CORPORATION. INDICATES THE MEASURES TO BE TAKEN
TO ACHIEVE THE IDEAL SCHOOL. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-614 793

BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
DEVELOPMENT OF TECHNIQUES FOR THE AUTOMATIC CONTROL
OF EXPERIMENTS IN A PSYCHOLOGY LABORATORY. (U)

DESCRIPTIVE NOTE: FINAL REPT.

FEB 65 152P

REPT. NO. BBN-1221

CONTRACT: AF19 628 296

PROJ: 4690

TASK: 469002

MONITOR: ESD

TDR-65-175

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PSYCHOLOGY, INSTRUMENTATION), (DIGITAL
COMPUTERS, CONTROL SYSTEMS), PSYCHOACOUSTICS, DECISION
MAKING, HUMAN ENGINEERING, PATTERN RECOGNITION, DISPLAY
SYSTEMS, REACTION (PSYCHOLOGY), EXPERIMENTAL DATA,
BEHAVIOR, AUTOMATIC, DESIGN (U)

THE REPORT DETAILS THE DEVELOPMENT OF METHODS FOR
USING A DIGITAL COMPUTER (THE DIGITAL EQUIPMENT
CORPORATION PDP-1) TO CONTROL APPARATUS AND
EXPERIMENTAL PROCEDURES IN PSYCHOLOGICAL EXPERIMENTS.
IT DESCRIBES THE DESIGN OF EQUIPMENT FOR A MULTI-
SUBJECT DISPLAY SYSTEM AND A PSYCHOACOUSTIC
LABORATORY SYSTEM. AN EXPERIMENT ILLUSTRATING THE
USE OF THE SYSTEM IS INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-615 129

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EDUCATION AND COMPUTER TECHNOLOGY.

MAY 65 30P O'TOOLE, JOHN F. , JR

REPT. NO. SP-1989

PROJ: F026

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (1-EDUCATION, COMPUTERS), (1-COMPUTERS,
EDUCATION), DIGITAL COMPUTERS, DATA PROCESSING SYSTEMS,
INSTRUCTORS, TEACHING MACHINES (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, TECHNOLOGY (U)

ACCEPTANCE OF THE HIGH-SPEED DIGITAL COMPUTER HAS BEEN REMARKABLY FAVORABLE. ESPECIALLY IN NATIONAL DEFENSE, IN BUSINESS AND INDUSTRY, AND IN SCIENCE. APPLICATIONS IN THESE FIELDS ARE BRIEFLY DESCRIBED. EDUCATION IS DISCUSSED IN TERMS OF THE TYPES OF INFORMATION PROBLEMS THAT ARE WOVEN THROUGH THE FABRIC OF THE ENTIRE EDUCATIONAL PROCESS: FROM PROBLEMS OF COLLECTING, STORING, COMMUNICATING, RETRIEVING, AND DISPLAYING INFORMATION; TO PROBLEMS OF RECEIVING, LEARNING, AND USING INFORMATION. THESE PROBLEMS ARE CONSIDERED AMENABLE TO SOLUTION BY COMPUTER APPLICATIONS. SOME OF THE VALUES AND FORCES UNDERLYING AMERICAN EDUCATION ARE DESCRIBED, AS WELL AS SOME OF THE RESPONSES OF THE EDUCATIONAL SYSTEM TO CHANGING NEEDS. E.G., CURRICULUM REFORM, PROGRAMMED INSTRUCTION, SCHOOL ORGANIZATION, INSTRUCTIONAL MATERIALS, AND THE EDUCATION OF TEACHERS. THESE VALUES, FORCES, AND RESPONSES ARE DISCUSSED WITHIN THE FRAMEWORK OF REQUIREMENTS FOR MORE EFFICIENT INFORMATION PROCESSING SYSTEMS AS PROVIDED BY COMPUTERS. (AUTHOR) (REVISION OF A CHAPTER IN A STUDY REPORT SUBMITTED TO THE U. S. OFFICE OF EDUCATION. 'APPLICATION OF ELECTRONIC DATA PROCESSING METHODS IN EDUCATION', JAN 1965)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-615 716

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS AND THE TEACHING OF ENGINEERING
MATHEMATICS.

(U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,

MAY 65 11P PELTON, WARREN J. ; STAUDHAMMER,

JOHN ;

REPT. NO. SP-2052/000/01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, ENGINEERING), (•ENGINEERING,
EDUCATION), (•COMPUTERS, TRAINING DEVICES), MATHEMATICS,
INSTRUCTORS, STUDENTS, PROGRAMMING (COMPUTERS) (U)

THE ENGINEERING COMMUNITY IS VERY MUCH AWARE OF THE
RAPID INCREASE OF SCIENTIFIC KNOWLEDGE AND
TECHNOLOGICAL APPLICATIONS, BECAUSE IT IS
IMPOSSIBLE TO INCLUDE ALL THE NEW KNOWLEDGE AND
TECHNOLOGY IN THE ENGINEERING CURRICULUM, A NEW LOOK
OR RESTRUCTURING OF THE ENGINEERING CURRICULUM IS
REQUIRED. A SUBSTANTIAL AID IN HELPING THE
ENGINEERING EDUCATOR RESTRUCTURE THE CURRICULUM IS
THE MODERN COMPUTER. EFFICIENT USE OF MODERN
COMPUTERS BY INSTRUCTORS OF ENGINEERING MATHEMATICS
CAN ELIMINATE MUCH OF THE UNNECESSARY ROPE OR
MECHANICAL MANIPULATION IN MANY OF THE COURSES.
MANY NEW AND UNIQUE COMPUTER PROGRAMS WILL HAVE TO
BE WRITTEN FOR EACH SEGMENT OF THE ENGINEERING
CURRICULUM. THE FACULTY AND STUDENTS MUST BE ABLE
TO UNDERSTAND THE USE OF THE COMPUTER AND BE ABLE TO
ACCESS THESE COMPUTER PROGRAMS DURING NORMAL
CLASSROOM STUDY. COMPUTER APPLICABILITY IN
INDIVIDUAL CLASSROOMS WILL ALLOW FOR THE EXPLORATION
OF MANY MORE PROBLEMS OF A GREATER DEGREE OF
SOPHISTICATION AND COMPLEXITY THAN CAN BE CURRENTLY
EXPLORED. THIS BROADER BASE OF APPLIED PROBLEMS
WILL AFFORD THE ENGINEERING STUDENT THE OPPORTUNITY
TO GAIN A GREATER DEPTH OF UNDERSTANDING AND INSIGHT
INTO THE APPLICATIONS OF MODERN ENGINEERING.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-616 296

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
ESSENTIAL PRINCIPLES OF PROGRAMED INSTRUCTION,
JUN 65 13P STOLUROW, LAWRENCE M. ;

(U)

REPT. NO. TR-8

CONTRACT: NONR398504

PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON RESEARCH ON PRE-
PROGRAMED SELF INSTRUCTION AND SELF-PROGRAMED
INDIVIDUALIZED EDUCATION.

DESCRIPTORS: (•EDUCATION, TEACHING MACHINES),
(•TEACHING MACHINES, EDUCATION), TRAINING DEVICES,
INSTRUCTORS, STUDENTS, LEARNING, THEORY

(U)

IDENTIFIERS: PROGRAMMED INSTRUCTION

(U)

ESSENTIAL PRINCIPLES OF PROGRAMED INSTRUCTION.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 544

BIO-DYNAMICS INC CAMBRIDGE MASS
DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED
ON-THE-JOB TRAINING, VOLUME III, EXPERIMENTAL USE OF
THREE INSTRUCTIONAL CONCEPTS, (U)

MAR 65 84P SHERIDAN, THOMAS B. ;

CONTRACT: AF19 628 455

PROJ: 7682

TASK: 768204

MONITOR: ESD

TDR-64-234 V3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-602 041, AD-602 042.

DESCRIPTORS: (*TRAINING DEVICES, COMMAND + CONTROL
SYSTEMS); (*COMMAND + CONTROL SYSTEMS, TRAINING
DEVICES), DESIGN, AUTOMATION, TEACHING MACHINES,
COMPUTERS, BEHAVIOR, GAME THEORY,
PERFORMANCE(HUMAN), PERFORMANCE TESTS, DISPLAY
SYSTEMS, CONTROL PANELS, ERRORS, DECISION MAKING,
HUMAN ENGINEERING, AIR FORCE PERSONNEL (U)

IDENTIFIERS: ON-THE-JOB TRAINING, MAN-MACHINE
SYSTEMS (U)

THE REPORT DESCRIBES THREE EXPERIMENTS IN WHICH
NOVEL TEACHING CONCEPTS WERE DEMONSTRATED. THESE
CONCEPTS HAD BEEN PROPOSED IN PREVIOUS REPORTS BUT
THEIR EFFECTIVENESS REMAINED TO BE VERIFIED
EXPERIMENTALLY. THE RESULTS WERE: (1) A
TEACHING PROGRAM ORDERED ACCORDING TO THE DISCOVERY
PRINCIPLE SIGNIFICANTLY REDUCED ERRORS AND
PERFORMANCE TIME OVER THAT OBSERVED AFTER TRAINING
WITH A CONVENTIONAL TRAINING MANUAL, (2) SLIDES
PROJECTED DIRECTLY ONTO A CONTROL CONSOLE, TOGETHER
WITH A TAPED LECTURE, WERE FOUND TO BE AN EFFECTIVE
METHOD OF PRESENTING AN AUTOMATED TRAINING PROGRAM,
(3) GRAPHICAL LOGICAL FLOW DIAGRAMS WERE FOUND TO
BE EFFICIENT INSTRUCTIONS FOR TEACHING PROCEDURES FOR
PERFORMING A QUERYING-REASONING TASK, IT WAS
CONCLUDED THAT THESE CONCEPTS SHOULD BE EXPLOITED IN
TRAINING PROGRAMS FOR OPERATORS OF AIR FORCE
INFORMATION SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 545

BIO-DYNAMICS INC CAMBRIDGE MASS

DESIGN AND USE OF INFORMATION SYSTEMS FOR AUTOMATED
ON-THE-JOB TRAINING, VOLUME V. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR 1962-1964,
APR 65 22p SHERIDAN, THOMAS B. ;

CONTRACT: AF19 62A 455

PROJ: 7682

TASK: 768204

MONITOR: ESD , TDR-64-234 V5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-616 551.

DESCRIPTORS: (*COMMAND + CONTROL SYSTEMS, TRAINING
DEVICES), (*TRAINING DEVICES, COMMAND + CONTROL
SYSTEMS), DESIGN, MODELS(SIMULATIONS),
COMPUTERS, AUTOMATION, PROGRAMMING(COMPUTERS),
DECISION MAKING, DISPLAY SYSTEMS, TEACHING
MACHINES (U)

IDENTIFIERS: FLOW CHARTS, MAN-MACHINE SYSTEMS,
ON-THE-JOB TRAINING (U)

THE REPORT DESCRIBES THE RESULTS AND CONCLUSIONS OF
A STUDY WHICH WAS DIRECTED AT THE DEVELOPMENT OF
PRINCIPLES FOR THE DESIGN OF AUTOMATED INSTRUCTIONAL
SUBSYSTEMS FOR INFORMATION SYSTEMS. A SERIES
OF FOUR TECHNICAL DOCUMENTARY REPORTS HAVE BEEN
ISSUED WHICH DESCRIBE IN DETAIL THE ACTIVITIES AND
RESULTS OF EACH ASPECT OF THE STUDY. THIS REPORT
BRINGS TOGETHER AND SUMMARIZES THE RESULTS REPORTED
IN THE INDIVIDUAL DOCUMENTS, AND INCLUDES ADDITIONAL
ITEMS WHICH DID NOT WARRANT SEPARATE DOCUMENTATION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-616 880

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
AN EXPERIMENTAL COMPARISON OF INSTRUCTIONAL
TECHNIQUES FOR USE IN TEACHING COMPUTER PROGRAM FLOW
CHART DESIGN, (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAR 65 22P MEYER, JOHN K. ;

REPT. NO. TB-65-10

PROJ: 3 1703 02 03 152

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TRAINING, PROGRAMMING(COMPUTERS)),
(*PROGRAMMING(COMPUTERS), TRAINING), (*COMPUTER
PERSONNEL, SELECTION), APTITUDE TESTS, DESIGN,
NAVAL PERSONNEL, EDUCATION, STUDENTS,
PSYCHOMETRICS (U)

IDENTIFIERS: FLOW DIAGRAMMING(COMPUTERS), FLOW
CHARTS (U)

FOUR SMALL GROUPS OF COLLEGE STUDENTS, SELECTED TO
APPROXIMATE A GROUP WHO HAD BEEN FOUND TO HAVE
DIFFICULTY IN SUCCEEDING IN THE NAVY BASIC COURSE
IN COMPUTER PROGRAMING, WERE TAUGHT FLOW CHARTING FOR
COMPUTER PROGRAMING PURPOSES BY TWO METHODS AND TWO
LENGTHS OF PRACTICE, THE ONLY SIGNIFICANT
DIFFERENCES FOUND CONCERNED THE INFLUENCES OF
APTITUDE AS MEASURED BY THE MATHEMATICS TESTS FROM
THE NAVY OFFICER CLASSIFICATION BATTERY AND
BY PROGRAMER APTITUDE TESTS. IT IS TENTATIVELY
CONCLUDED THAT SELECTION IS A MORE IMPORTANT PROBLEM
IN TRAINING PROGRAMERS THAN METHODS OF TRAINING.
OBJECTIVE METHODS WERE DEVELOPED FOR GRADING THE
FINAL EXAMINATION FLOW CHART EXERCISE. PLANS
INCLUDE DEVELOPING AND SIMPLIFYING THIS GRADING
PROCEDURE FOR USE WITH OTHER DESIGNS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-616 915

AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF

SHAPING FASTER QUESTION ANSWERING.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUN 35 74p BROOKS, LLOYD O. ;

REPT. NO. TR-10 .AIR-C28-6/65-TR10

CONTRACT: NONR307700

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE;

DESCRIPTORS: (*EDUCATION, TEACHING MACHINES),
(*TEACHING MACHINES, EDUCATION), LEARNING, TESTS,
STUDENTS, PERFORMANCE(HUMAN), READING,
DECISION MAKING, ERRORS, CORRELATION TECHNIQUES,
TABLES

(U)

IDENTIFIERS: PROGRAMMED INSTRUCTION

(U)

IN LABORATORY EXPERIMENTS, CONDUCTED WITH 12
COLLEGE STUDENT SS WHO COMPLETED PROGRAMED LESSONS
AT A TEACHING MACHINE DURING TWICE-PER-WEEK SESSIONS,
SS WERE AUTOMATICALLY SCORED SEPARATELY FOR
CORRECTNESS AND FOR SPEED OF CORRECT ANSWERING; THEIR
POINTS WERE LATER OF MONETARY VALUE TO SS WHO
CONTINUED FOR THE MONTH OF EXPERIMENTATION. SS
OPERATED THE LETTERED KEY CORRESPONDING TO THE FIRST
LETTER OF THE LAST WORD OF THEIR ANSWER, READ-AND-
ANSWER TIMES, OBTAINED IN A PREVIOUS STUDY, WERE
CONSIDERED IN ESTABLISHING CIRCUITS FOR SCORING THE
SPEED OF EACH CORRECT ANSWER IN RELATION TO
INDIVIDUAL FRAMES OF MATERIAL. ANSWERS SCORED AS
FAST WERE FOLLOWED BY CIRCUIT CHANGES WHICH ALLOWED
PROPORTIONATELY LESS TIME FOR A NEXT CORRECT RESPONSE
TO BE SCORED AS FAST. TYPICALLY, FAILURES TO OBTAIN
SCORES RELAXED SCORING STANDARDS. SCORING FOR
SPEED OCCURRED DURING HALF OF EACH OF THE TWO (AT
LEAST) LESSON PRESENTATIONS, ACCORDING TO A
COUNTERBALANCED DESIGN. CUMULATIVE RECORDS
INDICATED SS' GROSS PERFORMANCE, CORRECT ANSWERS,
SPEED SCORES, AND EQUIPMENT FUNCTION. PRINTING-
COUNTER RECORDS INDICATED EACH READ-AND ANSWER TIME
IN SECONDS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 607

GRAFLEX INC ROCHESTER N Y

FILMSTRIP TECHNIQUES FOR INDIVIDUALIZED
INSTRUCTION.

(U)

DESCRIPTIVE NOTE: FINAL REPT. FOR MAY 63-MAR 64,
MAY 65 21P TROW, WILLIAM H. SMITH, EDGAR

A. I

CONTRACT: AF33 657 11339

PROJ: 1710

TASK: 171007

MONITOR: AMRL , TR-65-78

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TRAINING DEVICES, PHOTOGRAPHIC FILM),
(•PHOTOGRAPHIC FILM, TRAINING DEVICES), EDUCATION,
PHOTOGRAPHS, TRAINING FILMS, STILL PROJECTORS,
CAMERA COMPONENTS + ACCESSORIES, COSTS, TEACHING
MACHINES, COLOR FILM, SPECIFICATIONS
IDENTIFIERS: PROGRAMMED INSTRUCTION.
FILMSTRIPS

(U)

(U)

IN THE PREPARATION OF FILMED PROGRAMED INSTRUCTION,
SEVERAL CONSIDERATIONS ARE INVOLVED IN THE CHOICE
BETWEEN SLIDES AND FILMSTRIPS. IN THIS REPORT, THE
CONSIDERATIONS OF REVISION, QUANTITY, LENGTH,
STORAGE, RECYCLING, ASPECT RATIO, CHANGE TIME, RANDOM
ACCESS AND CONTINUOUS REPETITION ARE BRIEFLY
DISCUSSED. A COMPARISON OF COSTS OF PREPARING A
MASTER OF THE FILMED PROGRAM AND DUPLICATE COPIES IS
MADE. AS A GUIDE TO THE PREPARATION OF FILMSTRIPS
BY STAFF PHOTOGRAPHERS, SOME OF THE PROBLEMS INVOLVED
ARE DISCUSSED, NAMELY, SINGLE-FRAME CAMERAS, THE
PREPARATION OF FLAT COPY, EXPOSURE AND SPLICING.
OTHER FILM FORMATS WITH POSSIBLE APPLICATION IN
AUDIO-VISUAL PROGRAMING ARE DESCRIBED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 608

GRAFLEX INC ROCHESTER N Y

AN EXAMINATION OF THE FEASIBILITY OF MODULAR DESIGN
FOR AUDIOVISUAL AUTOINSTRUCTIONAL EQUIPMENT. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR MAY 63-MAR 64.
MAY 65 36P TROW, WILLIAM H. SMITH, EDGAR

A. 1

CONTRACT: AF33 657 11339

PROJ: 1710

TASK: 171007

MONITOR: AMRL , TR-65-79

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (1) TRAINING DEVICES, PHOTOGRAPHIC
RECORDING SYSTEMS), (1) PHOTOGRAPHIC RECORDING SYSTEMS,
TRAINING DEVICES), EDUCATION, PHOTOGRAPHS,
PHOTOGRAPHIC FILM, TRAINING FILMS, STILL
PROJECTORS, DISK RECORDING SYSTEMS, MAGNETIC
RECORDING SYSTEMS, TEACHING MACHINES, COSTS,
FEASIBILITY STUDIES (U)

IDENTIFIERS: AUDIO-VISUAL EQUIPMENT, FILMSTRIPS,
PROGRAMMED INSTRUCTION (U)

THE INCREASING NEED FOR AUDIOVISUAL
AUTOINSTRUCTIONAL EQUIPMENT IN A WIDE RANGE OF
APPLICATIONS HAS CREATED A MAJOR PROBLEM IN
DEVELOPMENT OF SATISFACTORY EQUIPMENT TO MEET THE
VARYING DEMANDS. EACH SPECIFIC SITUATION REQUIRES
A CERTAIN COMBINATION OF OPTICAL, MECHANICAL AND
ELECTRONIC FUNCTIONS WHICH CANNOT NECESSARILY BE
ADAPTED TO SUBSEQUENT USAGES OF THE EQUIPMENT.
THIS RESULTS EITHER IN THE COSTLY ACQUISITION OF
MANY SIMILAR PIECES OF EQUIPMENT OR IN UNDESIRABLE
RESTRICTIONS ON THE INSTRUCTIONAL TECHNIQUES THAT
MIGHT BE USED. THIS STUDY EXAMINES EXISTING AND
POTENTIAL AREAS OF APPLICATION FOR AUDIOVISUAL
AUTOINSTRUCTIONAL EQUIPMENT AND PROPOSES A MODULAR
APPROACH IN THE DEVELOPMENT OF NEW EQUIPMENT. EACH
MODULE WOULD EMBODY A SEPARABLE MAJOR FUNCTION AND
WOULD BE INTERCHANGEABLE IN THE SYSTEM. THE
PROPOSED BASIC MODULES WOULD INCLUDE: (1) A
SLIDE-CHANGER MODULE, (2) A FILMSTRIP MODULE;
(3) A FAMILY OF SCREEN MODULES, (4) A FAMILY
OF LIGHT SOURCE MODULES, (5) AN AUDIO RECORD AND
PLAYBACK MODULE, (6) THREE SIGNAL PULSING
MODULES, (7) A MULTIPLECHOICE RESPONSE MODULE,
AND (8) A WRITE-IN RESPONSE MODULE.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-617 609

GRAFLEX INC ROCHESTER N Y

DESIGN CONSIDERATIONS INFLUENCING THE SIZE AND COST
OF OPTICAL COMPONENTS IN AUTOINSTRUCTIONAL
DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT, FOR MAY 63-MAR 64,
MAY 65 41P TROW, WILLIAM H. SMITH, EDGAR
A. ;

CONTRACT: AF33 657 11339

PROJ: 1710

TASK: 171007

MONITOR: AMRL

TH-65-60

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TRAINING DEVICES, PHOTOGRAPHIC
EQUIPMENT), (•PHOTOGRAPHIC EQUIPMENT, TRAINING
DEVICES), PHOTOGRAPHIC PROJECTORS, STILL PROJECTORS,
DESIGN, COSTS, VIEWING SCREENS, BRIGHTNESS,
LUMINESCENCE, PHOTOGRAPHIC RECORDING SYSTEMS,
OPTICAL MATERIALS, TEACHING MACHINES, MATHEMATICAL
ANALYSIS (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION, AUDIO-VISUAL
EQUIPMENT (U)

THE INCREASING DEMAND FOR LOW-PRICED PROJECTORS FOR
SELF-INSTRUCTIONAL PURPOSES HAS PROMPTED
INVESTIGATION OF DESIGN FACTORS WHICH CONTRIBUTE TO
THE MANUFACTURING COSTS IN THIS CLASS OF PRODUCT.
BECAUSE COST AND INTENDED USE ARE PRIME FACTORS,
DESIGN MUST BE BASED UPON THE OPTIMUM COMBINATION OF
OPTICAL COMPONENTS WHICH SATISFIES THESE DESIGN
OBJECTIVES. THE PROBLEMS OF THE PROJECTOR DESIGN
ITSELF ARE CONSIDERED, PRIMARILY THE DESIGN
CONSIDERATIONS FOR OPTICAL COMPONENTS THAT MIGHT BE
USED. RECENT DEVELOPMENTS IN LENS AND REFLECTOR
FABRICATION METHODS DO NOT YET PERMIT A REDUCTION OF
COST BELOW THAT OF CONVENTIONAL METHODS AND DESIGNS.
SOME PRINCIPLES AND PRACTICES FOR REAR PROJECTION
ARE PRESENTED, AND THE INTERDEPENDENCE OF MAJOR
FACTORS INVOLVED IN MAXIMIZING SCREEN PERFORMANCE IS
EXPRESSED IN MATHEMATICAL TERMS. THE ENVIRONMENTAL
FACTORS OF ROOM ILLUMINATION LEVEL, AUDIENCE SIZE AND
THE CONTRAST OF THE FILMED MATERIAL ARE FOUND TO BE
HIGHLY INFLUENTIAL IN THE DESIGN OF A REARPROJECTION
DEVICE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-617 740

UNITED STATES INDUSTRIES INC SILVER SPRING MD EDUCATIONAL
SCIENCE DIV

A GUIDE TO PREPARING INTRINSICALLY PROGRAMMED
INSTRUCTIONAL MATERIALS. (U)

DESCRIPTIVE NOTE: FINAL RPT. FOR 15 DEC 59-31 OCT 63.

APR 65 106F

WALTHER, R. E. ; CROWDER,

NORMAN ;

CONTRACT: AF33 61A 6983

PROJ: 1710

TASK: 171007

MONITOR: AMRL ,

TR-65-43

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, TRAINING DEVICES),
(•TRAINING DEVICES, EDUCATION), LEARNING,
PROGRAMMERS, TEACHING MACHINES, PREPARATION,
STUDENTS, TESTS, COSTS (U)

IDENTIFIERS: INTRINSIC PROGRAMMING, PROGRAMMED
INSTRUCTION (U)

TO AID THOSE RESPONSIBLE FOR THE PREPARATION OF
INTRINSICALLY PROGRAMMED INSTRUCTIONAL MATERIALS, THE
PROCEDURES AND TECHNIQUES DEVELOPED BY THE
EDUCATIONAL SCIENCE DIVISION OF U.S.
INDUSTRIES, INC., HAVE HERE BEEN ORGANIZED INTO A
PRACTICAL WORKING GUIDE. THE ORGANIZATION OF THIS
REPORT CLOSELY FOLLOWS THE SEQUENCE OF STEPS REQUIRED
TO PRODUCE AN EFFECTIVE INTRINSIC PROGRAM.
ALTHOUGH OTHER SYSTEMS OF PROGRAMMING ARE
IDENTIFIED, THIS GUIDE IS SPECIFICALLY INTENDED FOR
USE IN THE PREPARATION OF INTRINSIC PROGRAMS IN
EITHER BOOK OR TUTORFILM FORMAT. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-617 771

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
INTEGRATING COMPUTERS INTO BEHAVIORAL SCIENCE
RESEARCH.

(U)

JUN 65 29P BORKO, H. ;
REPT. NO. SP-2102

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
ANNUAL INSTITUTE IN TECHNICAL AND INDUSTRIAL
COMMUNICATIONS (8TH) COLORADO STATE UNIV., 6-10
JUL 65.

DESCRIPTORS: (•BEHAVIOR, SIMULATION), (•COMPUTERS,
PSYCHOLOGY), DATA PROCESSING SYSTEMS, STATISTICAL
ANALYSIS, EDUCATION, LEARNING, LANGUAGE, SOCIAL
COMMUNICATION, MACHINE TRANSLATION, INFORMATION
RETRIEVAL, CLASSIFICATION

(U)

IDENTIFIERS: BEHAVIORAL SCIENCES

(U)

FOR THE BEHAVIORAL SCIENTIST, THE COMPUTER PROVIDES
A MEANS OF PERFORMING COMPLEX STATISTICAL ANALYSES
AND A METHOD OF SIMULATING SYSTEMS OF INTERACTING
VARIABLES. DATA PROCESSING TECHNIQUES HAVE BEEN
APPLIED TO EDUCATIONAL STUDIES, INFORMATION HANDLING
AND COMMUNICATION PROBLEMS. THE COMPUTER HAS SERVED
NOT ONLY AS A POWERFUL INVESTIGATORY TOOL BUT ALSO AS
AN INSTIGATOR OF MORE SIGNIFICANT PROBLEMS. IN
BOTH OF THESE ROLES COMPUTERS HAVE BEEN HAVING A
PROFOUND EFFECT ON BEHAVIORAL SCIENCE RESEARCH.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70MK08

AD-617 775

AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO

ADJUNCT TO SELF-STUDY FOR AIRCREW REFRESHER TRAINING
UNDER OPERATIONAL CONDITIONS IN THE AIR DEFENSE
COMMAND. (U)

DESCRIPTIVE NOTE: FINAL REPT. FOR MAR-OCT 64,

MAR 65 32p MEYER, DONALD E. I

REPT. NO. AMRL-TR-65-83

PROJ: 1710

TASK: 171007

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (1) EDUCATION, TRAINING DEVICES),
(1) TRAINING DEVICES, EDUCATION), (1) AVIATION
PERSONNEL, TRAINING DEVICES), TEACHING MACHINES,
STUDENTS, LEARNING, TESTS, AIR DEFENSE COMMAND (U)

THE PAPER IS A REPORT OF THE DEVELOPMENT AND
EXPERIMENTAL COMPARISON OF A SELF-STUDY TECHNIQUE
WITH CONVENTIONAL CLASSROOM METHODS AS A MEANS OF
REFRESHER TRAINING OF AIR CREWS UNDER OPERATIONAL
CONDITIONS. THE SELF-STUDY TECHNIQUE CONSISTED OF
(1) A COMPREHENSIVE SERIES OF MULTIPLE-CHOICE
QUESTIONS COVERING THE SUBJECT MATTER WITH EACH
QUESTION BEARING REFERENCE TO THE PAGE AND PARAGRAPH
OF A MANUAL CONTAINING THE DETAILED INFORMATION ON
WHICH THE QUESTION WAS BASED, (2) A PUNCHBOARD BY
WHICH STUDENTS IMMEDIATELY DETERMINED WHETHER THEIR
ANSWER TO EACH QUESTION WAS CORRECT OR INCORRECT, AND
(3) THE MANUAL TO WHICH STUDENTS REFERRED FOR
INFORMATION WHEN THEY CHOSE AN INCORRECT ANSWER TO A
QUESTION. THE CONCLUSIONS ARE: (1) THE
PREPARATION AND ADMINISTRATION OF THE SELF-STUDY
TECHNIQUE IS ENTIRELY WITHIN THE CAPABILITY OF AN
OPERATIONAL SQUADRON WITH ONLY A MINIMUM OF GUIDANCE;
(2) IN THE OPERATIONAL SETTING, THE SELF-STUDY
TECHNIQUE IS SUPERIOR TO CONVENTIONAL CLASSROOM
METHODS IN ITS EFFECTIVENESS AS A MEANS OF REFRESHER
TRAINING; AND (3) STUDENTS FAVOR THE SELF-STUDY
METHOD FOR REFRESHER TRAINING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-618 003

SYSTEM RESEARCH LTD RICHMOND (ENGLAND)

TEACHING AS A CONTROL-ENGINEERING PROCESS, (U)

64 6P PASK, GORDON I

CONTRACT: AF61 052 640 , AF61 052 402

MONITOR: AFOSR , 65-0583

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN CONTROL AND AUTOMATION
PROGRESS V9 N79 P6-11 JAN 1965 (COPIES AVAILABLE ONLY
TO DDC USERS).

DESCRIPTORS: (TEACHING MACHINES, CONTROL SYSTEMS),
(EDUCATION, TEACHING MACHINES), CYBERNETICS,
LEARNING, TRAINING DEVICES, SPECIAL PURPOSE
COMPUTERS, DISPLAY SYSTEMS, DESIGN, STUDENTS,
GREAT BRITAIN (U)

THE FIELD OF TEACHING MACHINES IS REVIEWED WITH PARTICULAR EMPHASIS ON ADAPTIVE TEACHING SYSTEMS, OR SYSTEMS IN WHICH THE TEACHING MACHINE IS AN ADAPTIVE CONTROL MECHANISM. THE AIM OF THE REVIEW IS TO INDICATE THE KIND OF MACHINERY THAT EXISTS, THE KIND OF WORK THAT IS BEING DONE, AND THE RESULTS THAT ARE ACHIEVED. THE PROBLEM OF DESIGNING AN ADAPTIVE CONTROL MECHANISM FOR AN ADAPTIVE TEACHING SYSTEM IS DISCUSSED. THE ARGUMENT IS CONCENTRATED ON A SINGLE CASE FOR WHICH A CERTAIN DESIGN (OR TEACHING STRATEGY EMBODIED IN A DESIGN) CAN BE JUSTIFIED. THE DISCUSSION MAY BE OF INTEREST TO THE CONTROL ENGINEER BECAUSE: (1) THE PROCESS TO BE CONTROLLED, A LEARNING PROCESS IN MAN, HAS AN UNFAMILIAR LOGICAL CALIBRE (TO ILLUSTRATE THIS I SHALL EXHIBIT THE MINIMAL MODEL FOR MAN THAT IS NEEDED TO DESIGN SUCH A CONTROL MECHANISM); (2) THE SYSTEM IS RELATIVELY INTRACTABLE AND THE DESIGN PROCEDURE IS GENUINELY CYBERNETIC; (3) IT IS SHOWN THAT THE MAN IS DYNAMICALLY STABLE ONLY IF HIS ENVIRONMENT IS SO ADJUSTED, BY THE ADAPTIVE MACHINE, THAT HIS RATE OF LEARNING CAN BE ALWAYS POSITIVE; (4) THE TEACHING SYSTEM IS DESIGNED BY SPECIFYING A STABILIZING SYSTEM AND LATER ARGUING THAT, BECAUSE DYNAMIC STABILITY IMPLIES THE EXISTENCE OF A POSITIVE LEARNING RATE, ANY STABILIZING SYSTEM IS ALSO A TEACHING SYSTEM; AND (5) THERE ARE MANY OTHER INTRACTABLE SYSTEMS, NOTABLY IN THE SOCIAL SCIENCES AND IN CONNECTION WITH INDUSTRIAL ORGANIZATIONS, WHICH MIGHT BE CONTROLLED IN A VERY SIMILAR FASHION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 046

STANFORD RESEARCH INST MENLO PARK CALIF
EXPLORATIONS IN THE AUTOMATION OF SENSORIMOTOR SKILL
TRAINING. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

MAY 65 81P ENGELBART, DOUGLAS C. ;

SORENSEN, PHILIP H. ;

CONTRACT: N61339 1517

PROJ: 7820

MONITOR: NAVTRADEVEN ; 1517-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, PSYCHOPHYSIOLOGY),
(*MOTOR REACTIONS, TRAINING), (*TRAINING,
TEACHING MACHINES), (*CODING, TEACHING MACHINES),
OFFICE EQUIPMENT + SUPPLIES, COMPUTERS, FEEDBACK,
TOUCH, VISUAL PERCEPTION, FEASIBILITY STUDIES,
PUNCHED CARDS, EFFECTIVENESS, AUTOMATIC,
PERFORMANCE TESTS, LEARNING, DATA PROCESSING
SYSTEMS, OPERATORS (PERSONNEL), COMPUTER
PERSONNEL (U)

THE PURPOSE OF THE STUDY WAS TO EXPLORE THE
FEASIBILITY OF USING A COMPUTER TO TEACH A
PSYCHOMOTOR TASK, I.E., OPERATION OF A 5-KEY CHORD
KEYSET FOR BINARY CODING, THE OTHER FUNCTIONS
STUDIED WERE MODE OF PRESENTING PROMPTS (VISUAL,
TACTUAL) AND EFFECTS OF FEEDBACK UPON PERFORMANCE.
THE AUTOMATED VISUAL AND TACTUAL PROMPTING MODES
WERE COMPARED WITH WHAT MIGHT BE CONSIDERED TO BE A
'TRADITIONAL' MODE, IN WHICH SUBJECTS (SS)
LEARNED THE CODE BY REFERRING TO A CODE SHEET, THE
RESULTS INDICATED THAT NONE OF THE METHODS OF
PROMPTING WAS SUPERIOR TO THE OTHERS, HOWEVER, THE
FACT THAT SS COULD BE TAUGHT TO PERFORM A
PSYCHOMOTOR TASK BY MEANS OF A COMPUTER IS A
SIGNIFICANT ADVANCE IN TRAINING PROCEDURES. THE
RESULTS ALSO INDICATED THAT THE PROVISION OF FEEDBACK
AIDED PERFORMANCE FOR EACH OF THE PROMPTING MODES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 155

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
COMPUTER-BASED INSTRUCTION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUL 65 52P STOLUROW, LAWRENCE M. ;

REPT. NO. TR-9

CONTRACT: NONR398504 , NONR183436

PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE COPY WILL NOT PERMIT FULLY
LEGIBLE REPRODUCTION, REPRODUCTION WILL BE MADE IF
REQUESTED BY USERS OF DDC. COPY IS AVAILABLE FOR PUBLIC
SALE.

DESCRIPTOR (*EDUCATION, TEACHING MACHINES),
(*TEACHING MACHINES, LEARNING), (*COMPUTERS,
EDUCATION), PROGRAMMING (COMPUTERS), COMPUTER
STORAGE DEVICES, CODING, PUNCHED CARDS,
STUDENTS

(U)

IDENTIFIERS: SOCRATES, CBIS SYSTEM, FLOW CHARTS,
PROGRAMMED INSTRUCTION

(U)

ONE PURPOSE OF THIS PAPER WAS TO PRESENT A
CONCEPTUALIZATION OF THE TEACHING-LEARNING PROCESS IN
A WAY THAT PERMITS THE DEVELOPMENT OF A CBIS
(COMPUTER-BASED INSTRUCTIONAL SYSTEM). ONE
FUNCTION OF THE CBIS IS THE DEVELOPMENT OF REAL-
TIME MODELS IN THE FORM OF COMPUTER PROGRAMS THAT
TEACH. WITH THESE PROGRAMS, WE CAN PERFORM A
SECOND FUNCTION WHICH IS TO CONDUCT RESEARCH RELATING
TO THE DECISION PROCESSES NECESSARY FOR TEACHING. A
SECOND PURPOSE WAS TO INDICATE WAYS IN WHICH
SOCRATES (SYSTEM FOR ORGANIZING CONTENT TO
REVIEW AND TEACH EDUCATIONAL SUBJECTS) IS
BEING USED: (A) TO CONDUCT RESEARCH RELATING TO
AN IDIOGRAPHIC MODEL OF TUTORIAL INSTRUCTION; (B)
TO STUDY BASIC VARIABLES RELATING TO LEARNING AND
TRANSFER; AND (C) TO DEVELOP THE TECHNOLOGY OF
USING A CBIS TO GENERATE LEARNING MATERIALS.
RESULTS FROM SEVERAL DIFFERENT APPLICATIONS OF
SOCRATES WERE SUMMARIZED. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-619 186

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SYSTEMS APPROACH TO INSTRUCTION.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

JUL 65 41P STOLUROW, LAWRENCE M. ;

REPT. NO. TR-7

CONTRACT: NONR398504 .NONR183436

PROJ: NR154 239

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-435 032.

DESCRIPTORS: (•EDUCATION, TEACHING MACHINES),
(•TEACHING MACHINES, LEARNING), TRAINING DEVICES,
INSTRUCTORS, MODELS(SIMULATION), STUDENTS,
THEORY, PROGRAMMING(COMPUTERS), FEEDBACK,
CYBERNETICS

(U)

IDENTIFIERS: SOCRATES, CBIS SYSTEM, SYSTEMS
ANALYSIS, PROGRAMMED INSTRUCTION, ADAPTIVE
PROCESSES, MAN-MACHINE SYSTEMS

(U)

THIS PAPER HAS OUTLINED THE NATURE OF THE SYSTEMS
APPROACH AS IT RELATES TO INSTRUCTION. A GENERAL,
BUT OPERATIONAL, MODEL OF INSTRUCTION AS A TUTORIAL
SYSTEM ALSO WAS PRESENTED. THE SCHEMATICS OF AN
ACTUAL COMPUTERASSISTED INSTRUCTIONAL MODEL KNOWN AS
SOCRATES HAVE BEEN DESCRIBED. THE MODEL IS
CYBERNETIC. IT ALSO RELATES THE LEARNER'S
CHARACTERISTICS TO TEACHING DECISIONS AND IN THIS
SENSE IT IS IDIOGRAPHIC. IN ADDITION, IT PERFORMS
THE NECESSARY FUNCTIONS FOR HIGHLY ADAPTIVE
INSTRUCTION WITH INSTRUCTIONAL OBJECTIVES, AS
IMPLEMENTED IN SOCRATES. THIS INVOLVES A THREE-
PROCESS CYCLE. THE FIRST OF THESE CONSISTS OF THE
PRETUTORIAL DECISIONS WHICH MATCH INDIVIDUAL
DIFFERENCES AMONG LEARNERS. THE SECOND OF THESE
CONSISTS OF TUTORIAL DECISIONS WHICH ARE
IMPLEMENTATION OF A SPECIFIC SET OF RULES. THE
THIRD OF THESE CONSISTS OF THE CHANGING OF TUTORIAL
DECISIONS WHICH INVOLVES THE SUBSTITUTION OF A SET OF
RULES WHENEVER THE PREVIOUS SET FAILS TO PRODUCE THE
DESIRED PERFORMANCE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-619 657

APPLIED PSYCHOLOGICAL SERVICES WAYNE PA
MASS TRAINING TECHNIQUES IN CIVIL DEFENSE, II, A
FURTHER STUDY OF TELEPHONIC ADJUNCT TRAINING, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 65 75P SIEGEL, ARTHUR I. FISCHL,
MYRON A. ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*CIVIL DEFENSE SYSTEMS, TRAINING),
(*APPLIED PSYCHOLOGY, CIVIL DEFENSE SYSTEMS),
TRAINING DEVICES, TELEPHONE COMMUNICATION SYSTEMS,
TEACHING MACHINES, POPULATION, CIVIL DEFENSE
PERSONNEL, PERFORMANCE(HUMAN), LEARNING,
MEASUREMENT, STATISTICAL TESTS, STATISTICAL
ANALYSIS (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

THE GAIN IN KNOWLEDGE ACCRUING THROUGH USE OF
TELEPHONIC ADJUNCT TRAINING WAS INVESTIGATED AMONG
INDIVIDUALS OF LIMITED FORMAL EDUCATION, THE
RESULTS INDICATED THAT BOTH ADJUNCT AUGMENTED
TELEPHONIC TRAINING AND ADJUNCT AUGMENTED READING
WERE MORE EFFECTIVE THAN EITHER READING OR
UNAUGMENTED TELEPHONIC TRAINING FOR PRESENTING ATTACK
SURVIVAL MATERIAL TO THIS SAMPLE OF SUBJECTS, THE
TWO PRIOR STUDIES IN THE PROGRAM ARE REVIEWED, AND
THE IMPLICATIONS OF THE OVERALL PROGRAM'S RESULTS FOR
PUBLIC EDUCATION IN CIVIL DEFENSE ARE DISCUSSED.
(AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-620 663

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
THE VALIDATION OF AN AUTOMATED COUNSELING SYSTEM,

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

AUG 65 1965 FRIESEN, DELOSS DAVID ;
REPT. NO. TM-2611/000/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (EDUCATION, DATA PROCESSING SYSTEMS),
(DATA PROCESSING SYSTEMS, EDUCATION), STUDENTS,
COMPUTERS, SIMULATION, BEHAVIOR,
PROGRAMMING (COMPUTERS), DECISION MAKING,
SCHEDULING

(U)

IDENTIFIERS: INTERVIEWS, COUNSELING

(U)

THE REPORT DESCRIBES EXPERIMENTS CONCERNED WITH THE
VALIDITY OF AN AUTOMATED COUNSELING SYSTEM.
FORTY 9TH GRADE STUDENTS FROM THE PALO ALTO
SCHOOL DISTRICT PARTICIPATED IN THE VALIDATION
STUDY. THE CUMULATIVE RECORDS OF THE 40 STUDENTS
WERE ANALYZED BY THE AUTOMATED APPRAISAL PROGRAM AND
THE 40 STUDENTS PARTICIPATED IN THE AUTOMATED
EDUCATIONAL PLANNING INTERVIEW. TWENTY OF THE 40
STUDENTS ALSO WERE INTERVIEWED BY THE ORIGINAL
COUNSELOR WHOSE BEHAVIOR WAS BEING SIMULATED BY THE
AUTOMATED PROGRAM. THE OTHER 20 STUDENTS WERE
INTERVIEWED BY A SECOND COUNSELOR FROM THE SCHOOL
DISTRICT. BOTH COUNSELORS MADE APPRAISALS OF THE
STUDENTS FROM THE STUDENT CUMULATIVE RECORD. THE
PERFORMANCE OF THE AUTOMATED COUNSELING SYSTEM WAS
COMPARED TO THE PERFORMANCE OF THE TWO COUNSELORS ON
THE FOLLOWING FOUR VARIABLES: THE APPRAISAL OF
PUPIL RECORDS PRIOR TO THE INTERVIEW, THE POST-
INTERVIEW APPRAISAL OF STUDENTS, THE EDUCATIONAL
DECISIONS MADE BY THE STUDENTS, AND THE COMPLETENESS
OF STUDENTS' EDUCATIONAL PLAN. THIS IS DR.
FRIESEN'S DOCTORAL DISSERTATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-621 169

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
A LISTING OF SOCRATES RESEARCH STUDIES FROM MARCH,
1964, TO JUNE, 1965. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

SEP 65 8P STOLUROW, LAWRENCE M. ;

REPT. NO. TH-19

CONTRACT: NONR398504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, SCIENTIFIC RESEARCH),
(•LEARNING, CYBERNETICS), REVIEWS, INSTRUCTORS,
COMPUTERS, PROGRAMMING (COMPUTERS) (U)

IDENTIFIERS: SOCRATES, PROGRAMMED INSTRUCTION (U)

SOCRATES RESEARCH STUDIES AND BIBLIOGRAPHY OF TECHNICAL
REPORTS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-621 923

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
CORRECTION AND REVIEW ON SUCCESSIVE PARTS IN LEARNING
A HIERARCHICAL TASK, (U)

65 3P MERRILL, M. DAVID I
CONTRACT: NONR398504

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE ANNUAL
CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION
(73RD), HELD AT CHICAGO, ILL., JUL 65.

DESCRIPTORS: (LEARNING, TEACHING MACHINES),
(TEACHING MACHINES, LEARNING), EFFECTIVENESS,
PROGRAMMING (COMPUTERS), TESTS, ERRORS,
RETENTION, ANALYSIS OF VARIANCE (U)
IDENTIFIERS: PROGRAMMED INSTRUCTION, SOCRATES (U)

A COMMON ASSUMPTION, SUPPORTED BY THE THEORETICAL
FORMULATIONS OF AUSUBEL (1963) AND GAGNE
(1965) AND THE PROGRAMMING TECHNIQUES ADVOCATED
BY CROWDER (1960), IS THAT LEARNING AND
RETENTION OF A HIERARCHICAL TASK ARE BOTH FACILITATED
BY MASTERING EACH SUCCESSIVE PART BEFORE PROCEEDING
TO THE NEXT PART, ON THE BASIS OF THIS ASSUMPTION
IT WAS HYPOTHESIZED THAT: IN A HIERARCHICAL
LEARNING TASK, (A) IF PART I IS MASTERED, SS
ARE ABLE TO LEARN PART II FASTER AND WITH FEWER
ERRORS THAN IF PART I IS NOT MASTERED BEFORE
PROCEEDING TO PART II, ETC.; (B) WHEN THE
TERMINAL TEST REQUIRES EVERY S TO REVIEW PREVIOUSLY
PRESENTED MATERIALS UNTIL HE IS ABLE TO ANSWER EVERY
QUESTION CORRECTLY, SS WHO ARE REQUIRED TO MASTER
EACH SUCCESSIVE PART OF THE TASK BEFORE PROCEEDING
TAKE LESS TOTAL TIME TO MASTER THE TERMINAL TEST THAN
SS WHO PROCEED FROM PART TO PART WITH NO
REQUIREMENT OF MASTERY; (C) SS WHO ARE REQUIRED
TO MASTER EACH SUCCESSIVE PART OF THE TASK BEFORE
PROCEEDING RETAIN THE MATERIAL BETTER THAN SS WHO
PROCEED FROM PART TO PART WITH NO REQUIREMENT OF
MASTERY EVEN WHEN THE TERMINAL TEST REQUIRES EVERY
S TO REVIEW PREVIOUSLY PRESENTED MATERIALS UNTIL HE
IS ABLE TO ANSWER EVERY QUESTION CORRECTLY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-622 011

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SOME CONSIDERATIONS IN THE EDUCATION OF INDIGENOUS
GROUPS IN THE SOUTHWEST. (U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
JUL 65 14P BERMAN, MARK L. ;
REPT. NO. SP-2148

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH ARIZONA
STATE UNIV., TEMPE.

DESCRIPTORS: (*EDUCATION, UNITED STATES),
POPULATION, CULTURE, POLITICAL SCIENCE,
ECONOMICS, STUDENTS, CALIFORNIA, NEVADA, NEW
MEXICO, ARIZONA (U)

IDENTIFIERS: PROGRAMMED INSTRUCTION (U)

CURRENT INTEREST IN THE EDUCATIONAL PROBLEMS OF THE
INDIGENOUS POPULATION OF THE SOUTHWESTERN UNITED
STATES, INCLUDING INDIANS AND SPANISH-SPEAKING
PEOPLES, IS HIGH. THE PAPER DISCUSSES THE GENERAL
SIZE AND DISTRIBUTION OF THESE POPULATIONS IN THE
SOUTHWEST. IN ADDITION, SELECTED RESEARCH
FINDINGS RELATING TO EFFORTS TO DEVELOP IMPROVED
METHODS OF DEALING WITH THE EDUCATIONAL PROBLEMS OF
THESE PEOPLE ARE PRESENTED. FINALLY, THE
APPLICABILITY OF CERTAIN EDUCATORY TECHNIQUES, SUCH
AS PROGRAMMED INSTRUCTION, IS DISCUSSED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-622 473

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
THE TEACHER AND CYBERNETICS. (U)

SEP 65 10P EFIMOV, S. I

REPT. NO. FTD-TT-65-1152

MONITOR: TT 65-64196

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM
KOMSOMOLSKAYA PRAVDA (USSR) 9 OCT P3 1962.

DESCRIPTORS: (•EDUCATION, CYBERNETICS), (•TEACHING
MACHINES, EDUCATION), TRAINING DEVICES, REASONING,
INSTRUCTORS, USSR (U)

TRANSLATION OF RUSSIAN ARTICLE: THE TEACHER AND
CYBERNETICS.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-623 025

ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SOCIAL REINFORCEMENT AND PERFORMANCE IN PROGRAMED
LEARNING IN ITALY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

OCT 65 37P PARIS, DOMENICO I

REPT. NO. TR-27

CONTRACT: NONR1834 36 ,USOE2 20 003

PROJ: NR177 472

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: MASTER'S THESIS, RESEARCH SUPPORTED
IN PART BY HEW, NDEA TITLE VI; CONTRACT USOE4 20 002.

DESCRIPTORS: (•LEARNING, PERFORMANCE(HUMAN)),
(•SOCIAL PSYCHOLOGY, LEARNING), ACHIEVEMENT TESTS,
VERBAL BEHAVIOR, REASONING, INTELLIGENCE TESTS,
PERSONALITY, ATTITUDES, MOTIVATION, FEEDBACK,
CORRELATION TECHNIQUES, STUDENTS, ITALY, UNITED
STATES (U)

IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY),
PROGRAMMED INSTRUCTION (U)

THE STUDY ATTEMPTED TO ASSESS THE EFFECTS OF SOCIAL
REINFORCEMENT ON PERFORMANCE IN A PROGRAMED LEARNING
TASK. THE FOUR EXPERIMENTAL CONDITIONS THAT
DETERMINED THE TREATMENT GROUPS WERE: POSITIVE,
NEGATIVE, POSITIVE AND NEGATIVE, AND NO SOCIAL
REINFORCEMENT (EVALUATING FEEDBACK).
INFORMATIONAL FEEDBACK IN THE BRANCHING PROGRAM USED
IN THE EXPERIMENT WAS IDENTICAL FOR ALL GROUPS.
ONE HUNDRED AND EIGHT MALE HIGH SCHOOL STUDENTS
WERE RANDOMLY ASSIGNED TO ONE OF THE FOUR TREATMENT
GROUPS. RESULTS INDICATE THAT NEGATIVE EVALUATIVE
FEEDBACK PRODUCED THE LARGER VARIANCE IN ACHIEVEMENT.
PERFORMANCE LEVEL IS HIGHER WHEN NEGATIVE
REINFORCEMENT IS GIVEN THAN WHEN IT IS NOT GIVEN.
POSITIVE EVALUATIVE FEEDBACK REINFORCEMENT DID NOT
AFFECT PERFORMANCE. THE NUMBER OF SIGNIFICANT
CORRELATIONS BETWEEN ACHIEVEMENT, ON THE ONE HAND,
AND VERBAL AND ABSTRACT REASONING ABILITIES AND 16
PF INTELLIGENCE FACTOR ON THE OTHER HAND, TENDS TO
DECREASE WITH INCREASING SOCIAL REINFORCEMENT
CONDITIONS. SOCIAL REINFORCEMENT ATTENUATES THE
USUAL CORRELATION BETWEEN INTELLIGENCE AND
ACHIEVEMENT TEST PERFORMANCE FOLLOWING PROGRAMED
LEARNING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ONK08

AD-623 526

ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USES OF PLATO: A COMPUTER-CONTROLLED TEACHING
SYSTEM. (U)

OCT 65 35P BITZER, DONALD L. ILYMAN,

ELIZABETH R. TEAGLEY, J. A. JR.

REPT. NO. R-268

CONTRACT: DA28 043AHCO0073E ,NONR398508

PROJ: 20014501831F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (TEACHING MACHINES, DIGITAL
COMPUTERS), DECISION MAKING, STUDENTS, COMPILERS,
TELEVISION DISPLAY SYSTEMS, EDUCATION,
PROGRAMMING (COMPUTERS), AUTOMATIC, LEARNING (U)

IDENTIFIERS: CDC 1604 COMPUTER, PLATO TEACHING
SYSTEM, TIME SHARING (COMPUTERS), LEARNING
MACHINES (U)

THE USE OF A HIGH-SPEED DIGITAL COMPUTER AS A
CENTRAL CONTROL ELEMENT PROVIDES GREAT FLEXIBILITY IN
AN AUTOMATIC TEACHING SYSTEM. USING A COMPUTER-
BASED SYSTEM PERMITS VERSATILITY IN TEACHING LOGICS
SINCE CHANGING THE TYPE OF TEACHER HERELY REQUIRES
CHANGING THE COMPUTER PROGRAM, NOT TH HARDWARE.
IN ADDITION, HAVING ACCESS TO THE DECISION-MAKING
CAPACITY OF A LARGE COMPUTER LOCATED AS ONE UNIT
PERMITS COMPLICATED DECISIONS TO BE MADE FOR EACH
STUDENT. SUCH CAPACITY WOULD BE PROMISIVELY
EXPENSIVE TO PROVIDE BY MEANS OF DECISIONMAKING
EQUIPMENT LOCATED AT EACH STUDENT STATION. THE
RESULTS OF EXPLORATORY QUEUING STUDIES SHOW THAT THE
SYSTEM COULD TEACH AS MANY AS A THOUSAND STUDENTS
SIMULTANEOUSLY WITHOUT INCURRING A NOTICEABLE DELAY
FOR ANY STUDENT'S REQUEST. THE EDUCATIONAL RESULTS
THUS FAR HAVE BEEN EXTREMELY ENCOURAGING. HOWEVER,
RELIABLE CONCLUSIONS ON EDUCATIONAL ACHIEVEMENT MUST
AWAIT THE RESULTS OF MORE THOROUGH EXPERIMENTS NOW IN
PROGRESS WHICH INCLUDE LARGER NUMBERS OF STUDENTS
LEARNING UNDER A VARIETY OF CONDITIONS. THE
ADAPTABILITY AND USEABILITY OF THE SYSTEM FOR A
VARIETY OF PURPOSES IN EDUCATION AND THE BEHAVIORAL
AND PHYSICAL SCIENCES HAVE BEEN CLEARLY DEMONSTRATED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ONK08

AD-623 824 17/7 7/2
UNIVAC DIV SPERRY RAND CORP ST PAUL MINN
PROGRAMMING, INTEGRATION, AND CHECKOUT OF THE STORED
PROGRAM ALPHA-NUMERIC BEACON SYSTEM. (U)
DESCRIPTIVE NOTE: FINAL REPT.
JUN 65 90P
REPT. NO. PX-3539
CONTRACT: FA64WA-3020
PROJ: 105-2000
MONITOR: SRDS, RD-65-79

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PROGRAMMING (COMPUTERS), AIR TRAFFIC
CONTROL SYSTEMS), (RADAR BEACONS, AIR TRAFFIC
CONTROL SYSTEMS), (AIR TRAFFIC CONTROL SYSTEMS,
RADAR BEACONS), DISPLAY SYSTEMS, CHECKOUT
PROCEDURES, OPERATIONS RESEARCH, DIGITAL SYSTEMS,
VIDEO INTEGRATION (U)
IDENTIFIERS: SPAN (STORED PROGRAM ALPHA-
NUMERIC BEACON SYSTEM) (U)

THE STORED PROGRAM ALPHA-NUMERIC BEACON
SYSTEM PROVIDES ENROUTE AREA CONTROLLERS WITH
BRIGHT DISPLAY OF SYMBOLIC AND ALPHA-NUMERIC DATA
RELATIVE TO CONTROLLER INITIATED TRACKS AND
AUTOMATICALLY MAINTAINS CONTINUOUS ASSOCIATION
BETWEEN THIS DATA AND BEACON VIDEO BY MEANS OF
DIGITAL TRACKING TECHNIQUES. THE SYSTEM CONSISTS
OF A DIGITAL COMPUTATIONAL SUBSYSTEM, THREE BEACON
SUBSYSTEMS, AND A DISPLAY SUBSYSTEM. WORK
PERFORMED UNDER THIS CONTRACT INCLUDES DESIGN AND
PREPARATION OF THE COMPUTER PROGRAM FOR THE
OPERATIONAL SYSTEM, ELECTRICAL AND OPERATIONAL
INTEGRATION OF THE SYSTEM AT THE AIR ROUTE
TRAFFIC-CONTROL CENTER AT INDIANAPOLIS,
INDIANA, AND CHECKOUT OF THE SYSTEM TO VERIFY ITS
COMPLIANCE TO GOVERNMENT SPECIFICATIONS AND
REQUIREMENTS. ALL SYSTEM EQUIPMENTS, THE SYSTEM
SITE, AND SITE FURNISHINGS WERE PROVIDED BY THE
GOVERNMENT. THE MAJOR FUNCTIONAL ELEMENTS OF THE
OPERATIONAL COMPUTER PROGRAM ARE TRACKING, PROCESSING
OF CONTROLLER INSERTED DATA AND REQUESTS, AND
PREPARATION OF PROPERLY FORMATTED MESSAGES FOR
DISPLAY. THE TRACKING FUNCTION IS MULTISTATE
ALPHA, BETA, STRAIGHT LINE TRACKING. THE
AVAILABILITY OF THE SYSTEM'S GENERAL PURPOSE DIGITAL
COMPUTER MADE POSSIBLE AN APPROACH TO EQUIPMENT
SYSTEM INTEGRATION WHICH WAS PRIMARILY BASED UPON A
SEQUENCE OF SPECIALLY DESIGNED PROGRAMED TESTS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-623 916 5/9
HARVARD UNIV CAMBRIDGE MASS
THE RELATION OF POSTTEST PERFORMANCE TO RESPONSE-
CONTINGENCIES IN PROGRAMMED INSTRUCTION, (U)
JUN 65 15p SHERMAN, MARK A. ;
CONTRACT: AF19(62A)-2404
PROJ: AF-7682
TASK: 768204
MONITOR: ESD , TR-65-357

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
EFFECTIVENESS), TEACHING MACHINES, STUDENTS,
TESTS, RECALL, LEARNING, (U)
PERFORMANCE(HUMAN),

TWO PROGRAMS, CONTAINING FICTITIOUS SUBJECT MATTER,
WERE EMPLOYED IN A STUDY DESIGNED TO COMPARE THE
TEACHING EFFECTIVENESS (AS MEASURED BY POSTTEST)
OF TEXTUAL MATERIAL PRESENTED (1) AS
CONTINGENCIES FOR RESPONSES IN A PROGRAM, OR (2)
AS MATERIAL UPON WHICH RESPONSES WERE NOT
CONTINGENT. THE CONTENT OF THE PROGRAMS WAS
IDENTICAL, AND THEY DIFFERED ONLY IN THAT MATERIAL
WHOSE READING WAS NECESSARY FOR CORRECT RESPONDING IN
ONE PROGRAM WAS NOT NECESSARY FOR CORRECT RESPONDING
IN THE OTHER AND VICE VERSA. THE POSTTEST WAS THE
SAME FOR ALL SUBJECTS. HALF OF THE POSTTEST
RELATED TO MATERIAL WHICH WAS RESPONSECONTINGENT IN
ONE OF THE PROGRAMS. AND THE OTHER HALF RELATED TO
MATERIAL WHICH WAS RESPONSE-CONTINGENT IN THE OTHER
PROGRAM. RESULTS INDICATE THAT RESPONSECONTINGENT
MATERIAL LEADS TO HIGHER POSTTEST SCORES THAN THE
SAME MATERIAL WHEN IT IS NOT NECESSARY FOR CORRECT
RESPONDING WITHIN THE PROGRAM. THE PROBABILITY OF
INFORMATION BEING ACQUIRED FROM A PROGRAM IS
INCREASED WHEN THIS INFORMATION IS RESPONSE-
CONTINGENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 152 9/2 6/4

BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
CYCLOPS-2: A COMPUTER SYSTEM THAT LEARNS TO
SEE,

(U)

DESCRIPTIVE NOTE: FINAL SCIENTIFIC REPT. 1 JUL 64-13
OCT 65,

OCT 65 68P BLOOM, BURTON H. ; MARILL,
THOMAS ;

REPT. NO. TR65-RD1-1 ,BBN1333

CONTRACT: AF19(628)-4306

PROJ: AF-4641

TASK: 4641-02

MONITOR: AFCRL 65-731

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PATTERN RECOGNITION,
PROGRAMMING(COMPUTERS)),
(*PROGRAMMING(COMPUTERS), PATTERN RECOGNITION),
(*LEARNING, PROGRAMMING(COMPUTERS)), DIGITAL
COMPUTERS, ANALYSIS, ARTIFICIAL INTELLIGENCE,
COMPUTER STORAGE DEVICES, INFORMATION RETRIEVAL
IDENTIFIERS: LIST PROCESSING, CYCLOPS COMPUTER
SYSTEM, PDP-1 COMPUTER

(U)

(U)

THE DESIGN OF THE CYCLOPS-2 SYSTEM IS DISCUSSED
IN DETAIL. WHEN COMPLETED, THE SYSTEM WILL HAVE
THE ABILITY TO RECOGNIZE VISUAL SHAPES COMPOSED OF
ARBITRARY LINES, TO ANALYZE SCENES COMPOSED OF SUCH
SHAPES, AND TO LEARN, I.E., TO IMPROVE ITS OWN
PERFORMANCE BY EXAMINING CORRECTLY LABELED EXAMPLES.
THE TECHNIQUES EMBEDDED IN THE DESIGN ARE QUITE
GENERAL AND CAN BE APPLIED TO OTHER RECOGNITION OR
LEARNING SITUATIONS THAN THOSE CYCLOPS-2 WAS
SPECIFICALLY DESIGNED TO HANDLE. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 437 9/2
STANFORD RESEARCH INST MENLO PARK CALIF
NOTES ON CLASSIFICATION CAPACITIES. (U)
DESCRIPTIVE NOTE: INTERIM REPT.,
OCT 65 26P COVER, T. 1
CONTRACT: AF30(602)-3448
PROJ: 5581
TASK: 558104
MONITOR: RADC . TR-65-263

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-436 347.

DESCRIPTORS: (+LEARNING MACHINES, NETWORKS),
(+COMPUTER LOGIC, PATTERN RECOGNITION),
CLASSIFICATION, DATA STORAGE SYSTEMS, LINEAR
SYSTEMS, MATHEMATICAL LOGIC (U)
IDENTIFIERS: THRESHOLD LOGIC UNIT (U)

THIS IS A WORKING PAPER CONCERNED WITH THE PROBLEM
OF DETERMINING THE INFORMATION STORAGE CAPACITIES OF
NETWORKS OF LINEAR THRESHOLD DEVICES, CAPACITIES
FOR SINGLE ELEMENT NETWORKS AND LOW DIMENSIONAL
MULTIELEMENT NETWORKS ARE FOUND, AND BOUNDS ON
CAPACITIES ARE DISCUSSED FOR GENERAL NETWORKS,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 548 9/2
ILLINOIS UNIV URBANA ELECTRICAL ENGINEERING RESEARCH
LAB
AUTOMATIC ADJUSTMENT IN A CONTINUOUS ENVIRONMENT,

(U)

SEP 65 23P ANDREW, A. M. ;
REPT. NO. TR-8
CONTRACT: AF AFOSR-7-64
MONITOR: AFOSR 65-2283

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, ADAPTIVE SYSTEMS),
CONTROL SYSTEMS, AUTOMATIC, OPTIMIZATION,
ARTIFICIAL INTELLIGENCE, MATHEMATICAL MODELS (U)

CONTROL DEVICES, BIOLOGICAL OR OTHERWISE, WHICH ARE
ABLE TO ADJUST THEIR OWN INTERNAL PARAMETERS ARE
DISCUSSED. IT IS SHOWN THAT UNDER CERTAIN
CIRCUMSTANCES THE ADJUSTMENT PROCESS MUST DEPEND ON
EXPERIMENTAL FLUCTUATIONS SUPERIMPOSED ON EITHER THE
PARAMETERS OR THE CONTROL SIGNALS. THE WAY IS
STUDIED IN WHICH THE EFFECTIVE FLUCTUATIONS
ATTRIBUTED TO THE PARAMETERS CAN BEST BE COMPUTED
FROM FLUCTUATIONS OF THE CONTROL SIGNALS. A
MATHEMATICAL COMPARISON IS GIVEN OF TWO WAYS IN WHICH
A SELF-IMPROVING CONTROLLER MAY OPERATE, NAMELY WITH
AND WITHOUT AN EXPLICIT MODEL OF THE ENVIRONMENT.
FOR A SIMPLE CONTROL TASK THE TWO ARE SHOWN TO BE
ALMOST EXACTLY EQUIVALENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-624 937 5/9 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTERS IN SYSTEMS OF HIGHER EDUCATION, (U)
DEC 65 14P CAFFREY, JOHN G. ;
REPT. NO. SP-2213

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AEDS-STANFORD
CONFERENCE, OCTOBER 31-NOVEMBER 3, 1965, AT STANFORD
UNIV.

DESCRIPTORS: (•EDUCATION, COMPUTERS), (•COMPUTERS,
EDUCATION), DATA PROCESSING SYSTEMS, UNIVERSITIES,
MANAGEMENT ENGINEERING, PERSONNEL, TRAINING (U)

DESIGNING AN INFORMATION SYSTEM REQUIRES THAT THE
ADMINISTRATOR THINK CAREFULLY AND MAKE VERY EXPLICIT
HIS OBJECTIVES AND CRITERIA, AND SOME OBSERVERS FEEL
THAT SUCH AN IMPERATIVE IS A USEFUL DISCIPLINE IN ITS
OWN RIGHT, AS THE NEED FOR REGIONAL AND INTER-
INSTITUTIONAL USE OF COMPUTER AND INFORMATION SYSTEMS
INCREASES, NEW ARRANGEMENTS WILL BE NEEDED FOR
COOPERATION, BOTH VERTICALLY AND HORIZONTALLY, AMONG
AND BETWEEN INSTITUTIONS AND THEIR GOVERNING OR
REGULATORY BOARDS. STEPS WILL HAVE TO BE TAKEN TO
PROVIDE TRAINING AND ORIENTATION FOR ALL LEVELS OF
MANAGEMENT IN HIGHER EDUCATION, ESPECIALLY IN THE
TRAINING OF NOVICE ADMINISTRATORS WHO WILL MANAGE
TOMORROW'S SYSTEMS OF HIGHER EDUCATION, USING THE
EXISTING TECHNOLOGY (NOT ALL OF IT AS YET WIDELY
DISSEMINATED OR WELL UNDERSTOOD). IT IS POSSIBLE TO
DRAW A PICTURE OF THE UNIVERSITY OF TOMORROW IN WHICH
THE COMPUTER, WITH ITS ATTENDANT PERIPHERAL EQUIPMENT
AND SOFTWARE SYSTEMS, WILL BE A BASIC AND
INDISPENSABLE PART OF THE FABRIC OF MANAGEMENT AS
WELL AS OF THE TOTAL OPERATING AND INSTRUCTIONAL
PROGRAM OF THE INSTITUTION. THE MAIN PROBLEM AT
THE MOMENT IS NOT THE TECHNOLOGY, WHICH HAS OUTPACED
ITS USERS IN HIGHER EDUCATION, BUT DISSEMINATION,
DEVELOPMENT, AND THE TRAINING OF APPROPRIATE
PERSONNEL. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-625 225 6/4 9/2
NAVAL ORDNANCE LAB WHITE OAK MD
SYNTHETIC NERVE NETWORKS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
APR 65 141P COTE, ALFRED J., JR.
REPT. NO. NOLTR-65-55
TASK: RREN-04/012/212/1/F008-21/02, RUDC-4B-000/212-
1/F001-05-02

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES,
MICROMINIATURIZATION(ELECTRONICS)), (*PATTERN
RECOGNITION, LEARNING MACHINES), (*BIONICS,
MICROMINIATURIZATION(ELECTRONICS)), (*ARTIFICIAL
INTELLIGENCE, PATTERN RECOGNITION), ANALOG
SYSTEMS, VISION, SOUND, SENSORY MECHANISMS,
NERVE CELLS, NERVOUS SYSTEMS, SIMULATION (U)

MOST MODELS OF PATTERN RECOGNITION PROCESSES ARE
CONCEIVED WITHOUT REGARD TO THE DIFFICULTIES WHICH
MIGHT BE ANTICIPATED IF ONE HAD TO FABRICATE A FULL
SCALE ENGINEERING MODEL EMBODYING THE PROPOSED
PRINCIPLES. THIS REPORT DISCUSSES RECOGNITION
SYSTEMS WHICH TAKE INTO ACCOUNT THE FABRICATION
LIMITATIONS ONE WOULD EXPECT TO ENCOUNTER IN THE
CONSTRUCTION OF EXTREMELY HIGH DENSITY
MICROELECTRONIC PATTERN RECOGNITION SYSTEMS. THE
RESULTING ANALOG SYSTEMS RESPOND TO TRANSIENT
PATTERNS AND THE VARIOUS ARTIFICIAL NEURONS WITHIN
THEM EXHIBIT FUNCTIONAL BEHAVIOR COMPARABLE TO THAT
FOUND IN BIOLOGICAL PROTOTYPES. THE APPLICATION OF
THESE PRINCIPLES IS FIRST DISCUSSED IN TERMS OF A
VISUAL PROCESSING SYSTEM WHICH WOULD EXHIBIT MANY OF
THE PROPERTIES ATTRIBUTED TO NERVE FIBRES IN THE
VISUAL SYSTEMS OF FROGS AND CATS, INCLUDING THOSE
LINE SENSING PROPERTIES ATTRIBUTED BY HUBEL TO
FIBRES IN THE CAT'S VISUAL CORTEX. THE MANNER IN
WHICH THESE SAME PRINCIPLES CAN BE APPLIED TO THE
PROBLEM OF SOUND RECOGNITION IS THEN CONSIDERED,
METHODS OF REALIZATION, AND AN IMPORTANT FUNCTION
OF LEARNING IN SUCH SYSTEMS, ARE ALSO DISCUSSED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-625 498 5/2 9/2
FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY
WASHINGTON D C
1965 CONGRESS, INTERNATIONAL FEDERATION FOR
DOCUMENTATION (FID), 10-15 OCTOBER 1965, WASHINGTON,
D. C.: ABSTRACTS. (U)
OCT 65 96p
CONTRACT: AF49(63R)-1561
PROJ: AF-9769
TASK: 976901
MONITOR: AFOSR , 65-1891

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (DOCUMENTATION, SYMPOSIA), ABSTRACTS,
EDUCATION, TRAINING, EASTERN EUROPE, PAKISTAN,
LIBRARIES, SOUTH AMERICA, SWEDEN, INFORMATION
RETRIEVAL, CANADA, FRANCE, JAPAN, WEST
GERMANY, MANAGEMENT PLANNING, TRANSFORMATIONAL
GRAMMARS, CLASSIFICATION, COMPUTERS, OPTICAL
SCANNING, PUNCHED TAPE, MAN-MACHINE SYSTEMS (U)
IDENTIFIERS: MAC PROJECT, FILE STRUCTURES, (U)
CITATION INDEX, USER SURVEYS

THE BOOKLET CONTAINS ABSTRACTS OF SYMPOSIUM PAPERS
AND CONTRIBUTED PAPERS PRESENTED AT THE 1965
CONGRESS. SYMPOSIUM ABSTRACTS ARE GROUPED IN FIVE
TOPIC AREAS: (1) EDUCATION AND TRAINING OF
DOCUMENTALISTS, (2) ORGANIZATION OF INFORMATION
FOR DOCUMENTATION, (3) INFORMATION NEEDS OF
SCIENCE AND TECHNOLOGY, (4) INFORMATION NEEDS OF
SOCIETY, AND (5) PRINCIPLES OF DOCUMENTATION AND
SYSTEMS DESIGN. CONTRIBUTED ABSTRACTS ARE ARRANGED
ALPHABETICALLY BY NAME OF THE FIRST AUTHOR. AN
AUTHOR INDEX IS INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-625 759 6/16 5/2 5/10 6/4
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SUPERIMPOSED RANDOM CODING OF STIMULUS RESPONSE
CONNECTIONS. (U)

DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
NOV 65 18P GREENE, PETER H. ;
REPT. NO. SP-2071/000/00
CONTRACT: NONR-2121(17)
PROJ: NR-049-148

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*NERVOUS SYSTEM, CODING),
(*INFORMATION RETRIEVAL, CODING), LEARNING,
NERVE CELLS, REPORTS, PUNCHED CARDS,
STIMULATION, REACTION (PSYCHOLOGY),
PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: PERCEPTRONS,
REINFORCEMENT (PSYCHOLOGY), DESCRIPTORS (U)

THE PROBLEM OF ECONOMICALLY LINKING A LARGE NUMBER
OF STIMULI WITH A LARGE NUMBER OF POTENTIAL RESPONSES
IS CONSIDERED TO RESEMBLE A PROBLEM OF EFFICIENT
RETRIEVAL OF DOCUMENTS (THE RESPONSES) ON THE
BASIS OF THEIR CHARACTERIZATION BY DESCRIPTORS (THE
STIMULI TO WHICH THE RESPONSES ARE APPROPRIATE),
IN THIS RETRIEVAL PROBLEM, A METHOD WHEREBY THE
CODES FOR DESCRIPTORS ARE RANDOM POSITIONS IN A
CODING FIELD, AND WHEREBY CODES FOR ALL APPLICABLE
DESCRIPTORS ARE SUPERIMPOSED IN THE SAME FIELD, SEEMS
TO BE THE SIMPLEST WAY OF AVOIDING SERIOUS
DIFFICULTIES OF RETRIEVAL. AFTER A REVIEW OF THIS
METHOD, THE POSSIBILITY IS CONSIDERED THAT VERY
SIMPLE NEURAL MECHANISMS COULD EMBODY THE ESSENTIAL
FEATURES OF THE METHOD. THE AIM OF THE DISCUSSION
IS TO LEARN WHETHER VERY SIMPLE STRUCTURES AND
PATTERNS OF REINFORCEMENT WOULD BE ADEQUATE TO CARRY
OUT USEFUL INFORMATION PROCESSING IN THE BRAIN, AND
TO SHOW SOME CONCEIVABLE FUNCTIONS OF SIMPLE NEURAL
NETWORKS THAT THE EXPERIMENTER MIGHT KEEP IN MIND.
THE DISCUSSION ALSO SHOWS HOW THE STRUCTURE OF A
SIMPLE 'PERCEPTRON-LIKE' NETWORK IS SUGGESTED BY THE
REQUIREMENTS OF A RETRIEVAL TASK. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-626 262 5/7 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
A SELF-INSTRUCTIONAL TACTICAL LANGUAGE COURSE IN
RUSSIAN. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 65 74p ROCKLYN, EUGENE H. ;
REPT. NO. HUMRRO-TR-65-14
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J02401A712-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (RUSSIAN LANGUAGE, PROGRAMMED
INSTRUCTION), EDUCATION, TEACHING METHODS,
MILITARY TACTICS, INSTRUCTION MANUALS,
VOCABULARY (U)

TO ENABLE THE COMBAT SOLDIER TO OBTAIN PERISHABLE,
TACTICAL INFORMATION FROM NEWLY CAPTURED PRISONERS OF
WAR, A BRIEF, SELF-INSTRUCTIONAL RUSSIAN LANGUAGE
COURSE WAS DEVELOPED AND EVALUATED. MATERIALS
OBTAINED FROM QUESTIONNAIRES ADMINISTERED OF COMBAT-
EXPERIENCED PERSONNEL WERE REVIEWED AND REFINED,
RESULTING IN A FINAL VERSION OF COURSE CONTENT THAT
COVERED AREAS OF INFORMATION LIKELY TO BE USED IN ANY
OFFENSIVE OR DEFENSIVE QUESTIONING SITUATION. THE
COURSE WAS TAKEN BY 13 STUDENTS HAVING LANGUAGE
APTITUDES RANGING FROM 0 TO THE 97TH PERCENTILE ON
THE ARMY LANGUAGE APTITUDE TEST. UPON
COMPLETION, THEY WERE TESTED ON CONTENT ACQUISITION
OF ALL MATERIAL IN THE COURSE AND ON ABILITY TO USE
THE MATERIAL TO OBTAIN INFORMATION FROM NATIVE
RUSSIANS DURING SIMULATED COMBAT-AREA QUESTIONING.
THE RESULTS WERE A MEAN OF 93% CORRECT FOR
SPEAKING AND UNDERSTANDING RUSSIAN AND AN 89%
MEAN IN TRANSLATING ANSWERS GIVEN BY THE RUSSIANS,
THUS DEMONSTRATING THE FEASIBILITY OF SUCH A COURSE.
THE STRUCTURE AND QUESTIONING TECHNIQUES SEEM
EFFECTIVE IN HELPING TO ELICIT UNDERSTANDABLE ANSWERS
FROM NONENGLISH-SPEAKING PERSONNEL AND MAY SERVE AS
A BASIS FOR DEVELOPMENT OF SIMILAR COURSES IN OTHER
LANGUAGES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 076 5/9
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
REPLAB, A STUDY IN SCIENTIFIC INQUIRY USING THE PLATO
SYSTEM, (U)
DEC 65 36P BITZER, DONALD L. ; LYMAN,
ELISABETH R. ; SUCHMAN, J. RICHARD ;
REPT. NO. R-260
CONTRACT: DA-28-043-AMC-00073(E) , NONR-3985(08)
PROJ: DA-20014501831F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-623 526.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEARNING),
(*TEACHING MACHINES, DIGITAL COMPUTERS), EDUCATION,
STUDENTS, MAN-MACHINE SYSTEMS,
PERFORMANCE(HUMAN), EXPERIMENTAL DESIGN,
DECISION MAKING (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

ONE OF THE TEACHING TECHNIQUES EMPLOYED IN THE
ILLINOIS STUDIES IN INQUIRY TRAINING PROJECT
WAS A LESSON, REPLAB, (RESPONSIVE ENVIRONMENT
PROGRAMMED LABORATORY), WRITTEN FOR USE WITH
THE PLATO COMPUTER-CONTROLLED TEACHING SYSTEM.
THE LESSON WAS DESIGNED TO DEVELOP INQUIRY SKILLS
AND TO STUDY INQUIRY STYLES OF INDIVIDUAL STUDENTS.
A FILM, SHOWING AN EVENT INVOLVING A BIMETALLIC
STRIP WAS PRESENTED TO THE STUDENTS BY MEANS OF A
COMPUTER-ACTIVATED PROJECTOR. THE STUDENTS
ANSWERED QUESTIONS ABOUT THE EVENT POSED THEM VIA THE
PLATO 'ELECTRONIC BOOK.' ANSWERS TO SOME OF THE
QUESTIONS COULD BE FOUND BY CAREFUL OBSERVATION OF
THE FILM, OTHERS BY OBTAINING FURTHER INFORMATION
FROM RESULTS DISPLAYED ON THEIR 'ELECTRONIC
BLACKBOARDS' BY THE COMPUTER IN RESPONSE TO THEIR
INQUIRIES IN THE PLATO EXPERIMENT LABORATORY,
PROPERTY LABORATORY OR CONDITION LABORATORY. ONE
SET OF QUESTIONS IN THE QUESTION SEQUENCE TESTED THE
STUDENTS' ABILITY TO GO BEYOND THE DATA THEY HAD
OBTAINED FROM THE COMPUTER AND FORMULATE THEORIES.
THE DETAILED RECORD OF THE REPLAB STUDENT
RESPONSES PROVIDED BY THE PLATO SYSTEM GAVE DATA
FOR A CORRELATION OF VARIABLES IN THE REPLAB LESSON
WITH THOSE FROM PRE-TESTS AND POST-TESTS GIVEN THE
STUDENTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 162 5/9 1/2
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
COMPARISON OF CONVENTIONAL AND PROGRAMED INSTRUCTION
IN TEACHING AVIONICS FUNDAMENTALS, (U)
DESCRIPTIVE NOTE: TECHNICAL BULLETIN,
DEC 65 32p LONGO, ALEXANDER A. ; MAYO, G.
DOUGLAS ;
REPT. NO. STJ-66-16
PROJ: PF017030401

UNCLASSIFIED REPORT

DESCRIPTORS: (•EDUCATION, ANALYSIS), (•AERONAUTICS,
NAVAL TRAINING), (•NAVAL TRAINING, PROGRAMMED
INSTRUCTION), (•PROGRAMMED INSTRUCTION,
EFFECTIVENESS), ELECTRONIC EQUIPMENT, ELECTRICAL
EQUIPMENT, PSYCHOMETRICS, DIRECT CURRENT,
CIRCUITS, METERS, NAVAL PERSONNEL (U)
IDENTIFIERS: AVIONICS SYSTEMS (U)

THE STUDY IS ONE OF A SERIES OF INVESTIGATIONS INVOLVING A VARIETY OF COURSE CONTENT AND TRAINING CONDITIONS WHERE PROGRAMED INSTRUCTION WILL BE COMPARED WITH CONVENTIONAL CLASSROOM INSTRUCTION TO PROVIDE INFORMATION ABOUT THE GENERAL UTILITY OF PROGRAMED INSTRUCTION. HERE THE PERFORMANCE OF 200 TRAINEES TAKING 24 HOURS OF CONVENTIONAL INSTRUCTION IN ELECTRICAL CALCULATIONS, DIRECT CURRENT CIRCUITS, AND DIRECT CURRENT METERS IS COMPARED WITH THE PERFORMANCE OF 200 TRAINEES TAKING 19 HOURS OF PROGRAMED INSTRUCTION ON THE SAME CONTENT. RESULTS INDICATE: (1) THE BASIC ELECTRONICS STUDENTS LEARNED A RELATIVELY LARGE BLOCK OF PROGRAMED MATERIAL TO ABOUT THE SAME DEGREE BUT IN SUBSTANTIALLY LESS TIME THAN WAS REQUIRED BY CONVENTIONAL INSTRUCTION; (2) THE CONSTRUCTED RESPONSE EXAMINATION, PREPARED FOR PROGRAMED INSTRUCTION PURPOSES, EXHIBITED SATISFACTORY RELIABILITY; (3) THE CONVENTIONAL AND PROGRAMED INSTRUCTION GROUPS DID NOT DIFFER SIGNIFICANTLY WITH RESPECT TO VARIABILITY IN PERFORMANCE; (4) THE '100% PERFORMANCE LEVEL' OF PROGRAMED MATERIAL DECREASED AS A FUNCTION OF THE AMOUNT OF PROGRAMED MATERIAL TESTED AT A GIVEN TIME. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-627 335 9/2
STANFORD RESEARCH INST MENLO PARK CALIF
GRAPHICAL-DATA-PROCESSING RESEARCH STUDY AND
EXPERIMENTAL INVESTIGATION. (U)
DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. NO. 9, 1 AUG-
31 OCT 65,
NOV 65 39P BRAIN, ALFRED E. ; DUDA, RICHARD
O. ; FORSEN, GEORGE E. ; MUNSON, JOHN M. ;
REPT. NO. SRI-R-21
CONTRACT: DA-36-039-AMC-03247(E)
PROJ: DA-1PO-20401-A-327 , SRI-4565
TASK: 1PO-20401-A-327-02-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-623 280.

DESCRIPTORS: (1)GRAPHICS, DATA PROCESSING SYSTEMS),
(1)INFORMATION RETRIEVAL, GRAPHICS), (1)PATTERN
RECOGNITION, GRAPHICS), (1)DATA PROCESSING SYSTEMS,
MILITARY REQUIREMENTS), DIGITAL COMPUTERS,
COMPUTER LOGIC, TRAINING, MAPS, TELEVISION
COMMUNICATION SYSTEMS, TELEVISION DISPLAY SYSTEMS,
PICTURES (U)
IDENTIFIERS: MINOS II, SDS 910 COMPUTER, SHIFT
REGISTERS, SYMBOLS (U)

THE EXPERIMENTS ON THE RECOGNITION OF HAND-DRAWN
MILITARY MAP SYMBOLS, USING THE EDGE-DETECTOR MASK
PLATE IN THE 1000-IMAGE PREPROCESSOR, HAVE BEEN
CONTINUED WITH EACH IMAGE BEING DISPLAYED IN A SERIES
OF 8 POSITIONS, PLUS A 10TH VIEW WITH THE IMAGE
SOMEWHAT LARGER. THIS GAVE A DATA SET OF 4030
PATTERNS; 3240 WERE USED FOR TRAINING, 810 FOR
TESTING. THE ERROR RATE WAS RELATIVELY HIGHER FOR
THE TRAINING DATA AS COMPARED WITH PREVIOUSLY
REPORTED RESULTS, BUT RELATIVELY LOWER FOR THE TEST
DATA. THE PIECEWISE LINEAR STRUCTURE PERFORMED
SIGNIFICANTLY BETTER THAN THE COMMITTEE MACHINE. A
BRIEF ACCOUNT IS GIVEN OF THE METHOD USED TO DISPLAY
THE CHARACTERISTICS OF THE DOT PRODUCT UNITS IN
MINOS II. THE SHIFT-REGISTER INTERFACE BETWEEN THE
TV CAMERA AND THE SDS 910 HAS NOW BEEN COMPLETED
AND IS OPERATIONAL. ILLUSTRATIONS ARE SHOWN OF THE
NORMAL PICTURE, QUANTIZED PICTURE, 120-LINE STORED
PICTURE, AND 24-LINE STORED PICTURE FOR THE MAP
SYMBOLS USED IN THE TESTS DESCRIBED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-627 908 9/2 6/4
BELL AEROSYSTEMS CO BUFFALO N Y
A UNIFYING MATHEMATICAL THEORY FOR TRAINING LEARNING
NETS. (U)
DESCRIPTIVE NOTE: FINAL REPT.;
OCT 65 100P GOERNER, J. G. ; GERHARDT, L. A. ;
POWELL, F. D. ;
REPT. NO. 9500-920032
CONTRACT: AF49(638)-1449
PROJ: AF-9769
TASK: 976906
MONITOR: AFOSR , 65-2710

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, ALGORITHMS),
(*ALGORITHMS, LEARNING MACHINES), ARTIFICIAL
INTELLIGENCE, TRAINING, SADDLE POINT METHOD,
OPTIMIZATION (U)

THIS REPORT ANALYZES THE DETERMINISTIC APPROACHES WHICH HAVE BEEN APPLIED TO THE DESCRIPTION OF NEURAL NET CONFIGURATIONS AND THEIR TRAINING ALGORITHMS WHICH EMPLOY A SINGLE LAYER OF TRAINABLE GAIN ELEMENTS AND PARTITION THE INPUT SPACE BY HYPERPLANES. THE NETS ARE DESCRIBED BY N-DIMENSIONAL GEOMETRIC VECTOR METHODS. A GENERAL ALGORITHM IS DEVELOPED BASED ON GRADIENT OR STEEPEST-DESCENT METHODS FOR OPTIMIZING A SYSTEM GIVEN A QUADRATIC INDEX OF PERFORMANCE. REDUCTIONS OF THIS ALGORITHM TO THE TWO BASIC CLASSES OF (A) ERROR CORRECTING AND (R) FORCED LEARNING ALGORITHMS AS SPECIAL CASES ARE CONSIDERED. EFFECTS ARE DISCUSSED OF COMPONENT IMPERFECTIONS SUCH AS SATURATION, NONLINEAR ADAPTION RATES, HYSTERESIS, AND COMPONENT FAILURE. EXAMINATION OF ADVANTAGES AND DISADVANTAGES OF THE VARIOUS ALGORITHMS INDICATE THAT THE ERROR CORRECTING ALGORITHM AND ITS MODIFIED FORMS HAVE THE FOLLOWING AREAS OF SUPERIORITY: (1) CAPABILITY IN SEPARATING SEPARABLE CLASSES, (2) ABILITY TO FORM LEAST-MEAN-SQUARE ERROR FOR NON-SEPARABLE CLASSES, (3) MINIMUM MAGNITUDE GAIN VECTOR, AND (4) RELATIVE INSENSITIVITY TO COMPONENT IMPERFECTIONS. THE FORCED LEARNING ALGORITHMS RESPOND TO THE RELATIVE FREQUENCY OF THE INPUT CLASSES, WHERE THIS SENSITIVITY IS IMPORTANT, THE FORCED LEARNING ALGORITHM MAY BE SUPERIOR. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-628 405 5/4 9/2 5/1
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC DOCUMENTS APPLICABLE TO STATE AND LOCAL
GOVERNMENT PROBLEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JAN 66 ZIP KIBBEE, JOEL M. ;
REPT. NO. TM-2025/000/02,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*POLITICAL SCIENCE, BIBLIOGRAPHIES),
(*DATA PROCESSING SYSTEMS, POLITICAL SCIENCE),
URBAN PLANNING, LAW, PUBLIC HEALTH, EDUCATION,
PROGRAMMING(COMPUTERS), MANAGEMENT CONTROL
SYSTEMS, INFORMATION RETRIEVAL, SIMULATION,
COMPUTERS

(U)

IDENTIFIERS: GOVERNMENT, PUBLIC ADMINISTRATION

(U)

THE DOCUMENT CONTAINS A SELECTIVE LIST OF SDC
PUBLICATIONS SELECTED ON THE BASIS OF THEIR GENERAL
OR SPECIFIC APPLICABILITY TO CURRENT PROBLEMS OF
STATE AND LOCAL GOVERNMENT. WORK OF A MORE BASIC
RESEARCH NATURE HAS BEEN OMITTED. THE LIST IS
ORGANIZED BY SUBSTANTIVE CATEGORIES AND
ALPHABETICALLY BY AUTHOR WITHIN EACH CATEGORY. THE
CATEGORIES INCLUDE: PUBLIC ADMINISTRATION, URBAN
AND REGIONAL PLANNING, THE ADMINISTRATION OF
JUSTICE, BIO-MEDICAL SYSTEMS, EDUCATIONAL
SYSTEMS, COMPUTER PROGRAM SYSTEMS, THE
DEVELOPMENT AND MANAGEMENT OF COMPUTER-BASED SYSTEMS,
INFORMATION RETRIEVAL, SIMULATION. AD NUMBERS
ARE PROVIDED FOR THOSE DOCUMENTS WHICH CAN BE
OBTAINED FROM THE DEFENSE DOCUMENTATION CENTER
OR THE DEPARTMENT OF COMMERCE'S CLEARINGHOUSE
FOR FEDERAL SCIENTIFIC AND TECHNICAL
INFORMATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /DHK08

AD-628 444 5/9 5/10
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
THE INFLUENCE OF PRACTICE FRAMES AND VERBAL ABILITY
ON PROGRAMED INSTRUCTION PERFORMANCE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 66 25p MELCHING, WILLIAM H. INELSON,
FRANK B. I
REPT. NO. HUMRR0-TR-66-1
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEARNING);
(*VERBAL BEHAVIOR, PERFORMANCE TESTS); (*LEARNING,
PERFORMANCE TESTS); ACHIEVEMENT TESTS, ANALYSIS OF
VARIANCE, PERFORMANCE(HUMAN),
COUNTERINSURGENCY (U)

THE EFFECT OF SPECIAL PRACTICE FRAMES UPON
PROGRAMED INSTRUCTION PERFORMANCE WAS EXAMINED USING
A PROGRAM IN COUNTERINSURGENCY. THE INDIVIDUALS
WHO SERVED AS SUBJECTS REPRESENTED TWO LEVELS OF
VERBAL ABILITY. PRACTICE FRAMES ENABLED SUBJECTS
TO PROCEED THROUGH THE PROGRAM AT A FASTER RATE PER
FRAME, MAKE FEWER PROGRAM ERRORS, AND SCORE HIGHER ON
A RECALL TYPE OF ACHIEVEMENT TEST. SUBJECTS OF
HIGHER VERBAL ABILITY WERE ABLE TO PROCEED THROUGH
THE PROGRAM AT A FASTER RATE, MAKE FEWER PROGRAM
ERRORS, AND EXHIBIT HIGHER SCORES ON ALL MEASURES OF
ACHIEVEMENT. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 707 6/4 12/1
INFORMATION RESEARCH ASSOCIATES INC CAMBRIDGE MASS
NON-PARAMETRIC PATTERN RECOGNITION, PART II, THE
NON-DISJOINT CASE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 65 13P OWEN, JOEL ;
REPT, NO. TR-2,IRA-100;5-PT-2
CONTRACT: NONR-4752(00),
PROJ: NR-348-010,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PATTERN RECOGNITION, DECISION
THEORY), TRANSFORMATIONS(MATHEMATICS), PROBABILITY,
DISTRIBUTION THEORY, STATISTICAL ANALYSIS,
LEARNING MACHINES, LEARNING, AUTOMATA, BIONICS,
INFORMATION THEORY (U)

IN PART I OF THIS PAPER (AD-628 706), A
NON-PARAMETRIC DISCRIMINATION TECHNIQUE WAS PROPOSED.
IT WAS SHOWN THAT WHEN PERFECT DISCRIMINATION WAS
POSSIBLE, THIS TECHNIQUE ACHIEVED THIS PERFECTION AND
IN CERTAIN CASES ACHIEVED IT WITH A FINITE LEARNING
PHASE. IN THIS REPORT, PROPERTIES OF THIS
TECHNIQUE ARE INVESTIGATED FOR THE CASE WHEN PERFECT
DISCRIMINATION IS NOT POSSIBLE. IN PARTICULAR, IT
IS SHOWN THAT EVEN UNDER THESE CONDITIONS ASYMPTOTIC
OPTIMALITY IN THE RISK SENSE IS ATTAINED.
(AUTHOR) (U)

UNCLASSIFIED

ODC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-628 776 9/2 5/2 5/9 12/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
RESEARCH AND TECHNOLOGY DIVISION REPORT FOR
1965. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

JAN 66 178p DRUKEY, D. L. ; YARNOLD, K. W. ;
SCHWARTZ, J. I. ; DOBBS, G. M. ;
REPT. NO. TM-530/009/00.
CONTRACT: AF 19(628)-3418 , NONR-4421(00)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, SCIENTIFIC
RESEARCH), (*PROGRAMMING (COMPUTERS), OPERATIONS
RESEARCH), EDUCATION, TRAINING, MATHEMATICS,
DECISION MAKING, INFORMATION RETRIEVAL (U)

THE DOCUMENT DESCRIBES THE WORK OF SDC'S
RESEARCH AND TECHNOLOGY DIVISION FOR 1965.
THE PROGRESS OF THE VARIOUS STUDIES AND ACTIVITIES
IN THE DIVISION IS DESCRIBED UNDER THE FOLLOWING
MAJOR HEADINGS: ADVANCED PROGRAMMING,
INFORMATION PROCESSING RESEARCH, PROGRAMMING
SYSTEMS, DATA BASE SYSTEMS, LANGUAGE
PROCESSING AND RETRIEVAL, DECISION PROCESSES,
EDUCATION AND TRAINING, MATHEMATICS AND
OPERATIONS RESEARCH, RESEARCH AND TECHNOLOGY
LABORATORY, AND COMPUTER CENTER DEPARTMENT.
IN ADDITION, THE REPORT CONTAINS DESCRIPTIONS OF
DIVISION-SPONSORED BOOKS, MEETINGS AND COLLOQUIA,
AND PROFESSIONAL ACTIVITIES OF THE STAFF. (AUTHOR)

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-628 935 9/2 5/9
MILITARY ACADEMY WEST POINT N Y
SEMINAR OF MILITARY COMPUTER EDUCATORS AND COMPUTER
CENTER DIRECTORS, (U)
65 419P

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE CONFERENCE OF
MILITARY COMPUTER EDUCATORS (1ST), CONDUCTED AT
THE UNITED STATES MILITARY ACADEMY 14-17 JUNE
1965.

DESCRIPTORS: (*COMPUTERS, EDUCATION), (*COMPUTER
PERSONNEL, TRAINING), (*TRAINING DEVICES,
COMPUTERS), SYMPOSIA, DATA PROCESSING SYSTEMS,
MILITARY TRAINING, TEACHING MECHINES, COMPUTER
OPERATORS (U)

THE OBJECTIVES OF THE CONFERENCE WERE TO PROVIDE
ATTENDEES AN OPPORTUNITY TO ACCOMPLISH ALL OR PART OF
THE FOLLOWING DESIRABLE GOALS: (A) COORDINATE
PROGRAMS OF INSTRUCTION, (B) COMPARE METHODS OF
COMPUTER INSTRUCTION, (C) REDUCE REQUIREMENTS FOR
INDIVIDUAL COORDINATION VISITS, (D) DEVELOP
CONSISTENT PHILOSOPHY TOWARD COMPUTER EDUCATION,
(E) DETERMINE LEVEL OF COMPUTER KNOWLEDGE DESIRED
OF INCOMING STUDENTS AT ALL LEVELS OF MILITARY
EDUCATION, (F) ANALYZE SERVICE REQUIREMENTS FOR
COMPUTER EDUCATION AND MEANS OF SATISFYING THESE
REQUIREMENTS, (G) IDENTIFY SPECIFIC AREAS OF
WEAKNESS AND STRENGTH IN COMPUTER PROGRAMS NOW BEING
IMPLEMENTED BY PARTICIPANTS, (H) DEVELOP METHODS
AND TECHNIQUES BY WHICH COMPUTERS CAN CONTRIBUTE MORE
EFFECTIVELY TO THE TEACHING OF NON-COMPUTER SUBJECTS,
(I) EXCHANGE INFORMATION ON AUDIO-VISUAL AIDS
APPROPRIATE TO COMPUTER AND COMPUTER-AIDED
INSTRUCTION, (J) ASSURE THAT EACH RECEIVES
MAXIMUM BENEFIT FROM EXPERIENCES OF OTHER MILITARY
EDUCATIONAL ACTIVITIES INVOLVED TO VARYING DEGREES IN
COMPUTER AND COMPUTER-AIDED INSTRUCTION. (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-629 444 5/7 15/4
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
DEVELOPMENT AND EVALUATION OF A TACTICAL MANDARIN
CHINESE LANGUAGE COURSE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 65 49p GARVEY, CATHERINE (ROCKLYN,
EUGENE H. I
REPT. NO. HUMRRO-TR-65-15
CONTRACT: DA-44-188-ARO-2,
PROJ: DA-2J024701A712-01.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (CHINESE LANGUAGE, PROGRAMMED
INSTRUCTION), TRAINING, TACTICAL WARFARE, MILITARY
INTELLIGENCE, ENEMY PERSONNEL, PRISONERS, MILITARY
TRAINING, LEARNING, ACHIEVEMENT TESTS, PROGRAMMING
LANGUAGES (U)
IDENTIFIERS: CONTACT TASK, INTERROGATION,
TONEDISCRIMINATION, PERSONNEL MANAGEMENT PROJECT (U)

TO MEET THE NEED FOR A SHORT SELF-INSTRUCTIONAL
TACTICAL LANGUAGE COURSE IN A FAR EASTERN TONAL
TYPE LANGUAGE OF POTENTIAL MILITARY SIGNIFICANCE, A
COURSE IN MANDARIN CHINESE WAS DEVELOPED, BY
ADAPTING THE METHODS DESCRIBED IN SUBTASK CONTACT
II WITH REFERENCE TO A EUROPEAN TYPE LANGUAGE
(RUSSIAN). THE PURPOSE OF THE COURSE WAS TO
ENABLE COMBAT SOLDIERS TO ACQUIRE PERISHABLE TACTICAL
INFORMATION FROM NEWLY CAPTURED POWS. THE COURSE
WAS PROGRAMED IN THE FORMAT OF THE RUSSIAN MODEL
WITH A MAJOR CHANGE IN THE ADDITION OF TONE-
DISCRIMINATION AND TONE-PRODUCTION LESSONS. SIX
MALE STUDENTS, HIGH SCHOOL SENIORS AND GRADUATES WITH
VARIED LANGUAGE-LEARNING APTITUDES, TOOK THE COURSE
AND COMPLETED IT IN 61 TO 84 HOURS. THEIR FINAL
TEST SCORES, INDICATING ABILITY TO SPEAK AND
UNDERSTAND ALL THE ASSIGNED CHINESE VOCABULARY,
RANGED FROM 55% TO 98% CORRECT. IN A SIMULATED
QUESTIONING TEST, THE MEAN PERCENTAGE OF CORRECTLY
TRANSLATED ANSWERS WAS 84%. ALTHOUGH LOW LANGUAGE-
LEARNING APTITUDE WAS ASSOCIATED WITH LOWER SCORES,
THE OVERALL ACHIEVEMENT APPEARED TO BE SATISFACTORY,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 692 5/7 5/9 9/2

ITEK CORP WALTHAM MASS

RUSSIAN STENOTYPE EQUIPMENT, VOLUME 1, RUSSIAN
STENOTYPE SYSTEMS CODES, COMPUTER SYSTEMS, AND
TRAINING. (U)

DESCRIPTIVE NOTE: FINAL REPT., VOL. 1 OCT 63-SEP 65,

JAN 66 79P MARCUS, RICHARD LIBBY,

RICHARD NOVIER, PHILLIP I

CONTRACT: AF 30(602)-3213,

PROJ: AF-5591,

MONITOR: RADC, TR-65-329-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-608 663.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE
TRANSLATION), (*MACHINE TRANSLATION, OFFICE
EQUIPMENT + SUPPLIES), (*DATA PROCESSING SYSTEMS,
RUSSIAN LANGUAGE), PROGRAMMING (COMPUTERS),
INPUT-OUTPUT DEVICES, CODING, TYPEWRITERS,
TEACHING MACHINES, DISPLAY SYSTEMS, TRAINING,
DICTIONARIES (U)

IDENTIFIERS: STENOTYPE EQUIPMENT, CYRILLIC
ALPHABET, KEYBOARDS (U)

A PROGRAM TO DEVELOP A RUSSIAN STENOTYPE SYSTEM
WAS UNDERTAKEN TO PROVIDE A RAPID AND EFFICIENT
METHOD FOR CONVERTING RUSSIAN TEXT INTO MACHINE
PROCESSABLE FORM. THE RUSSIAN STENOTYPE SYSTEM
IS A MANUAL CODING SYSTEM DESIGNED TO REDUCE THE
CODING TIME AND COST OF THE INPUT FUNCTION OF
MACHINE AIDED TRANSLATION. THIS SYSTEM WILL
EVENTUALLY REPLACE THE PLYAOKRITENS, WHICH ARE
CURRENTLY USED, AND WITH THE INSTALLATION OF AN
OPERATIONAL RUSSIAN PRINT READER, WILL SERVE AS
BACK-UP. THE REPORT COVERS THE SOFTWARE ASPECTS OF
THE WORK. IN PARTICULAR, THE DESIGN OF THE
RUSSIAN STENOTYPE KEYBOARD AND CODING SYSTEM,
COMPUTER TRANSCRIPTION SYSTEMS, DICTIONARY
COMPILATION, TRAINING PROCEDURES AND STUDY OF
INFORMATION LOSS ARE DISCUSSED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 693 5/7 14/3
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME 11, RUSSIAN
STENOTYPE TERMINAL EQUIPMENT AND INPUT MULTIPLEXING. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 2.
JAN 66 43P MARCUS, RICHARD (LIBBY);
RICHARD INOVIER, PHILLIP I
CONTRACT: AF 30(602)-3213.
MONITOR: RADC TR-65-329-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 692.

DESCRIPTORS: (DATA PROCESSING SYSTEMS, RUSSIAN
LANGUAGE), (MACHINE TRANSLATION, OFFICE EQUIPMENT
+ SUPPLIES), (RUSSIAN LANGUAGE, MACHINE
TRANSLATION), INPUT-OUTPUT DEVICES, DIGITAL
SYSTEMS, CODING, TELEPHONE TRANSMITTERS, PUNCHED
TAPE, ENGLISH LANGUAGE, TEACHING MACHINES,
DISPLAY SYSTEMS, RECORDING SYSTEMS, MATHEMATICAL
MODELS, TYPEWRITERS, DESIGN, COSTS (U)
IDENTIFIERS: CYRILLIC ALPHABET, STENOTYPE
EQUIPMENT, AN/GSO(XW-2), KEYBOARDS,
MULTIPLEX (U)

THE VOLUME COVERS THE UNDERLYING CONCEPTS AND
DESCRIPTION OF REMOTE-INPUT TERMINAL EQUIPMENT
DEVELOPED FOR CONVERTING STENOTYPE KEYBOARD
ACTUATIONS INTO ELECTRICAL SIGNALS SUITABLE FOR
TRANSMISSION TO A DIFFERENT LOCATION FOR SUBSEQUENT
TRANSLATION TYPE PROCESSING. IN ADDITION THE
PROBLEM OF MULTIPLEXING SEVERAL SUCH INPUT TERMINALS
INTO THE INPUT OF A SINGLE TRANSLATING SYSTEM IS
TREATED. THE GENERAL PROBLEM ADDRESSED IS POSED BY
THE POSSIBLE USE OF RUSSIAN STENOTYPE KEYBOARDS
AS EFFICIENT AND HIGH SPEED CONVERTERS OF
CYRILLIC TEXT INTO MACHINE READABLE FORM. THIS
WOULD BE USEFUL IN A MECHANICAL TRANSLATION SYSTEM
SUCH AS THE U. S. AIR FORCE'S AN/GSO-16(XW-
2) AS WELL AS IN OTHER TEXT CONVERSION OPERATIONS.
THE GENERAL SYSTEM CONFIGURATIONS STUDIED AND THE
SPECIFIC EQUIPMENT DESCRIPTIONS ARE BASED UPON THE
EXISTENCE OF AN ELECTRICALLY WIRED STENOGRAPH
KEYBOARD WITH AN OPTIMIZED RUSSIAN KEYBOARD
ARRANGEMENT, AND A REMOTE TERMINAL 'SERIALIZER-
ENCODER' WHICH IS CAPABLE OF ONE-HALF DUPLEX
TELEPHONE LINE TRANSMISSION AS WELL AS CONTROLLING
OPERATION OF A PAPER TAPE PUNCH OR SOME OTHER
RECORDING DEVICE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-629 694 5/7 5/9
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME III, RUSSIAN
STENOTYPE TRAINING AND EVALUATION MACHINE. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 3,
JAN 66 33P MARCUS, RICHARD ; LIBBY,
RICHARD ; NOVIER, PHILLIP ;
CONTRACT: AF 30(602)-3213,
MONITOR: RADC , TR-65-329-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 693.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE
TRANSLATION), (*MACHINE TRANSLATION, OFFICE
EQUIPMENT + SUPPLIES), (*TEACHING MACHINES,
OFFICE EQUIPMENT + SUPPLIES), TEACHING METHODS,
TRAINING, TYPEWRITERS, TRAINING DEVICES,
PROGRAMMED INSTRUCTION, DISPLAY SYSTEMS, COSTS,
LEARNING (U)
IDENTIFIERS: STENOTYPE EQUIPMENT (U)

THE VOLUME DISCUSSES EQUIPMENT DEVELOPMENT
CONCERNED WITH AUTOMATING CERTAIN ASPECTS OF THE
TEACHING OF STENOTYPE AS A METHOD FOR CONVERTING
BOTH TEXTUAL AND VERBAL RUSSIAN LANGUAGE SOURCE
MATERIALS INTO MACHINE READABLE FORM, WHILE
VOLUME I COVERED THE 'SOFTWARE' AND LINGUISTIC
ASPECTS OF THIS PROBLEM, THIS REPORT DESCRIBES AN
EXPERIMENTAL AUTOMATED TEACHING AND EVALUATION
EQUIPMENT, THE METHODS AND PROCEDURES FOR ITS USE,
AND THE RATIONALE OF ITS DEVELOPED CHARACTERISTICS.
DETAILED TECHNICAL DESCRIPTION IS INCLUDED
ELSEWHERE IN A TECHNICAL MANUAL. THE EQUIPMENT
SYSTEM DESCRIBED IS AN ATTEMPTED COMPROMISE BETWEEN
EQUIPMENT COST, LESSON PREPARATION FLEXIBILITY, AND
TEACHING AND EVALUATION EFFECTIVENESS. IT IS
CONCLUDED THAT A VERSATILE TOOL HAS BEEN PRODUCED FOR
EVALUATING STENOTYPE CODING PROCEDURES AS WELL AS FOR
STUDYING TRAINING AND EVALUATION PARAMETERS FOR
EXPLOITING THE GREAT POTENTIAL OF STENOGRAPHY AS A HIGH
SPEED, VERSATILE INPUT KEYING METHOD. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-629 695 5/7 5/9
ITEK CORP WALTHAM MASS
RUSSIAN STENOTYPE EQUIPMENT, VOLUME IV, INSTRUCTOR'S
TRAINING MANUAL FOR RUSSIAN STENOTYPE. (U)
DESCRIPTIVE NOTE: FINAL REPT., VOL. 4,
JAN 66 96p MARCUS, RICHARD ; LIBBY,
RICHARD ; NOVIER, PHILLIP ;
CONTRACT: AF 30(602)-3213.
MONITOR: RADC ; 1R-65-329-VOL-4

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-629 694.

DESCRIPTORS: (*RUSSIAN LANGUAGE, MACHINE
TRANSLATION), (*MACHINE TRANSLATION, OFFICE
EQUIPMENT + SUPPLIES), (*TEACHING METHODS,
OFFICE EQUIPMENT + SUPPLIES), INSTRUCTION
MANUALS, TRAINING, TEACHING MACHINES, LEARNING,
TYPEWRITERS, EFFECTIVENESS (U)
IDENTIFIERS: KEYBOARDS, STENOTYPE EQUIPMENT,
CYRILLICALPHABET (U)

RUSSIAN STENOTYPE SYSTEMS PROVIDE A RAPID AND
EFFICIENT METHOD FOR CONVERTING TEXTUAL OR ORAL
RUSSIAN LANGUAGE SOURCE MATERIALS INTO MACHINE
READABLE FORM. ONE IMPORTANT ASPECT OF THIS METHOD
IS THE TRAINING OF STENOYPISTS. A TEACHING
MACHINE WAS DESIGNED AND BUILT TO AID IN THIS
TRAINING. THIS REPORT DESCRIBES THE TRAINING
PROCEDURES THAT WOULD BE EMPLOYED WITH THE TEACHING
MACHINE. WHILE THE TEACHING MACHINE ITSELF
HAS NOT YET BEEN TESTED, THE TRAINING PROCEDURES
DESCRIBED IN THIS REPORT HAVE BEEN HAND-SIMULATED IN
THE SUCCESSFUL TRAINING OF STUDENTS WHO HAVE HAD NO
PREVIOUS KNOWLEDGE OF RUSSIAN. FURTHER WORK IS
RECOMMENDED TO DETERMINE THE ACTUAL EFFECTIVENESS OF
THESE PROCEDURES IN THE TEACHING MACHINE
ENVIRONMENT. (AUTHOR) (U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-630 981 5/9 9/2
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
EFFECTIVENESS OF PROGRAMMED INSTRUCTIONAL MATERIALS
DESIGNED TO INTEGRATE LOWER-LEVEL SUPPORTING
BEHAVIORS INTO HIGHER-LEVEL BEHAVIORS IN A LEARNING
PROGRAM FOR COMPUTER FLOW CHART DESIGN. (U)
DESCRIPTIVE NOTE: TECHNICAL BULLETIN (FINAL),
FEB 66 39p FORD, JOHN D. ,JR.; MEYER,
JOHN K. ;
REPT. NO. STB-66-24,
PROJ: PFO17030210,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-616 880.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, FLOW
CHARTING), (*FLOW CHARTING, TEACHING METHODS),
(*COMPUTERS, FLOW CHARTING), (*TRAINING,
PROGRAMMING(COMPUTERS)), DESIGN, APTITUDE
TESTS, BEHAVIOR, INSTRUCTION MANUALS, LEARNING (U)
IDENTIFIERS: HIERARCHY, SYMBOLS (U)

THE STUDY SOUGHT TO EVALUATE A PRELIMINARY VERSION
OF A LEARNING PROGRAM DESIGNED TO TEACH COMPUTER FLOW
CHARTING. A METHOD SUGGESTED BY GAGNE WAS
APPLIED TO THE TASK OF DESIGNING COMPUTER FLOW
CHARTS. ANALYSIS BEGAN BY IDENTIFYING THE
SUPPORTING BEHAVIORS NEEDED TO PERFORM THE CRITERION
TASK. IT WAS IMPOSSIBLE TO OBTAIN A COMPLETE
HIERARCHICAL STRUCTURE FOR THE FLOW CHARTING TASK.
INSTRUCTIONAL MATERIALS WERE DEVELOPED FOR
VIRTUALLY ALL OF THE LEARNING SETS. THESE
MATERIALS COMPRISED THE BASIC OR CONTROL PROGRAM.
IN THE EXPERIMENTAL PROGRAM INTEGRATIVE
INSTRUCTIONAL MATERIALS WERE ADDED TO THE CONTROL
PROGRAM. EACH TRAINEE SPENT 15 HOURS ON A PROGRAM.
TRAINEE FLOW CHARTS WERE RATED ON THREE SKILLS,
(1) SYMBOLIC REPRESENTATION, (2) CONFIGURAL
DESIGN, AND (3) CONCEPTUAL FORMULATION.
MODERATE SUPPORT FOR A HIERARCHICAL TASK STRUCTURE
IS FOUND FOR THE SKILL AREA OF SYMBOLIC
REPRESENTATION. THE REMAINING TWO AREAS SEEM TO
CONFORM MUCH LESS TO A HIERARCHICAL ORGANIZATION.
IN ADDITION TO THE DATA OBTAINED BY RATINGS,
OBSERVATION OF TRAINEES WHILE THEY WORKED ON FLOW
CHART DESIGN PROBLEMS UNCOVERED PROCEDURAL OR PROCESS
BEHAVIORS WHICH CHARACTERIZED THE MORE SUCCESSFUL
TRAINEES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 138 5/9 5/10
WEST TEXAS STATE UNIV CANYON.
SOME INTERACTIONS BETWEEN INDIVIDUAL DIFFERENCES AND
MODES OF INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT., JAN 64-MAR 65,
DEC 65 20p BUSH, WILMA JO GREGG,
DOLORES K. SMITH, EDGAR A. MCBRIDE, COIT B. I

CONTRACT: AF 33(615)-1460.
PROJ: AF-1710,
TASK: 171007,
MONITOR: AMRL , TR-65-228

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•TEACHING METHODS, HUMANS),
STUDENTS, LEARNING, PSYCHOMETRICS, ACHIEVEMENT
TESTS, INTELLIGENCE TESTS, PERFORMANCE TESTS,
APTITUDE TESTS, READING, VOCABULARY,
MATHEMATICS, VERBAL BEHAVIOR, TRAINING DEVICES,
TEACHING MACHINES, PROGRAMMED INSTRUCTION,
STATISTICAL ANALYSIS, CORRELATION TECHNIQUES (U)

THIS STUDY EXPLORED THE HYPOTHESIS THAT THERE IS A
RELATIONSHIP BETWEEN PATTERNS OF LEARNING ABILITY AND
THE AMOUNT LEARNED IN DIFFERENT INSTRUCTIONAL
CONDITIONS. SCORES FOR EACH OF 44 SUBJECTS WERE
OBTAINED ON (A) THE READING VOCABULARY AND
THE MATHEMATICS FUNDAMENTALS SUBTESTS OF THE
CALIFORNIA ACHIEVEMENT TEST, (B) THE
ADMINISTRATIVE AND THE MECHANICAL SCALES FROM
THE AIRMAN QUALIFYING EXAMINATION, AND (C)
THE VERBAL AND PERFORMANCE SCALES OF THE
WECHSLER ADULT INTELLIGENCE SCALE. EACH OF
THE 44 SUBJECTS ALSO LEARNED IN FIVE DIFFERENT
TRAINING SITUATIONS. DIFFERENCES BETWEEN SCORES ON
ASSOCIATED SUBTESTS (E.G., READING VOCABULARY
MINUS MATHEMATICS FUNDAMENTALS) WERE CORRELATED
WITH THE DIFFERENCE BETWEEN GAIN SCORES OBTAINED IN
THE VARIOUS LEARNING SITUATIONS. A SIGNIFICANT
RELATIONSHIP WAS OBSERVED BETWEEN THE DIFFERENCE ON
THE SUBTESTS OF THE CALIFORNIA ACHIEVEMENT TEST
AND THE DIFFERENCE BETWEEN THE GAIN SCORE FROM
LECTURE-LIKE INSTRUCTION AND THE GAIN SCORE IN
LABORATORY-LIKE INSTRUCTION. THE DATA TENDED TO
SUPPORT THE HYPOTHESIS THAT STUDENTS WITH RELATIVE
STRENGTH IN READING VOCABULARY ARE SUPERIOR TO
STUDENTS WITH RELATIVE STRENGTH IN MATHEMATICS
FUNDAMENTALS WHEN BOTH ARE REQUIRED TO LEARN FROM
INSTRUCTIONAL CONDITIONS THAT ARE HIGHLY VERBAL. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 238 5/10
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHOOL
OF ENGINEERING
EFFECTIVE TECHNICAL COMMUNICATIONS. MECHANICAL
DESCRIPTION -EXPERIMENT II. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
65 130p DAVIS, RICHARD M. ;
MONITOR: AFIT , TR-65-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (+READING, ENGLISH LANGUAGE),
(+LEARNING, READING), FACTOR ANALYSIS, TEST
METHODS, SOCIAL COMMUNICATION, TEACHING MACHINES,
EFFECTIVENESS (U)
IDENTIFIERS: INTELLIGENCE(HUMAN), TECHNICAL
WRITING (U)

THE EFFECTS OF VARIABLES UPON THE EFFECTIVENESS OF
A WRITTEN TECHNICAL COMMUNICATION WERE TESTED IN A
3X2X2X2 FACTORIAL EXPERIMENT, THE SUBJECT MATTER
WAS A DESCRIPTION OF A SIMPLE MECHANISM, THE
VARIABLES WERE (1) THE MANNER IN WHICH THE SIZE
AND SHAPE OF THE MACHINE AND ITS PARTS WERE
PRESENTED, (2) INTRODUCTION (PRESENT OR
ABSENT), (3) INTERNAL ORIENTING MATERIAL
(PRESENT OR ABSENT), AND (4) HEADINGS
(PRESENT OR ABSENT). THE EFFECTIVENESS OF THE
MESSAGE WAS MEASURED BY (1) COMPREHENSION, (2)
READING TIME, (3) THE READERS' IMPRESSION OF THE
AUTHOR'S KNOWLEDGE OF THE SUBJECT MATTER, AND (4)
THE READERS' IMPRESSION OF THE AUTHOR'S COMPETENCE
AS A WRITER, THE AUDIENCES TESTED WERE (1)
BRIGHT YOUNG PEOPLE WITH KNOWN TECHNICAL INTERESTS,
(2) BRIGHT YOUNG PEOPLE WITHOUT KNOWN TECHNICAL
INTERESTS, (3) YOUNG MEN OF AVERAGE INTELLIGENCE
KNOWN TO HAVE TECHNICAL INTERESTS, AND (4) YOUNG
MEN OF BELOW AVERAGE INTELLIGENCE KNOWN TO HAVE
TECHNICAL INTERESTS, THE STRUCTURAL AIDS
(INTRODUCTION, INTERNAL ORIENTATION, AND HEADINGS)
CONTRIBUTED LITTLE TO THE EFFECTIVENESS OF THE
MESSAGE AS MEASURED BY THE CRITERIA USED, AND THEY
EVEN PROVED HARMFUL IN SOME INSTANCES, THE
EXPERIMENTAL METHOD USED SHOWS PROMISE AS A FAIRLY
RELIABLE PREDICTIVE INSTRUMENT. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 414 5/9
CINCINNATI UNIV OHIO
AN EVALUATION OF PROGRAMED INSTRUCTION FOR TEACHING
FACTS AND CONCEPTS. (U)
DESCRIPTIVE NOTE: FINAL REPT., APR 64-AUG 65,
DEC 65 34p JACOBS, JAMES N.; JOHNSON,
KIRK A.; ABMA, JOHN S.;
CONTRACT: AF 33(657)-10234,
PROJ: AF-1710,
TASK: 171007,
MONITOR: AMRL ; TR-65-222

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
CINCINNATI PUBLIC SCHOOL SYSTEM.

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
EFFECTIVENESS), LINEAR SYSTEMS, EDUCATION,
RETENTION, LEARNING, TEACHING METHODS (U)

THE STUDY EVALUATED FIVE METHODS OF TEACHING AN
ACADEMIC TOPIC ('BILL OF RIGHTS') TO HIGH
SCHOOL CLASSES. THE FIVE METHODS WERE: (1)
LINEAR PROGRAM IN CLASS, (2) LINEAR PROGRAM AS
HOMEWORK PLUS DISCUSSION IN CLASS, (3) TEXT
VERSION OF LINEAR PROGRAM IN CLASS, (4) TEXT
VERSION OF LINEAR PROGRAM AS HOMEWORK PLUS DISCUSSION
IN CLASS, AND (5) CONVENTIONAL LECTURE-DISCUSSION
METHOD IN CLASS. THE LINEAR PROGRAM ALONE PROVIDED
THE BEST RESULTS WHEN MEASURED BOTH FOR THE LEARNING
OF FACTUAL MATERIAL AND GENERAL CONCEPTS ABOUT THE
TOPIC. THE LINEAR PROGRAM WAS BEST FOR HIGH,
INTERMEDIATE, AND LOWER LEVELS OF SCHOLASTIC
APTITUDE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-631 634 6/4 5/10 9/2
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON CYBERNETIC INVESTIGATION OF LEARNING AND
PERCEPTION. (U)
DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT. NO. 3,
FEB 66 104P PASK, GORDON ; ELSTOB, M. ;
MALLEN, GEORGE L. ;
CONTRACT: AF 61(052)-640,
PROJ: AF-9769,
MONITOR: AFOSR . 66-0644

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-611 543.

DESCRIPTORS: (*CYBERNETICS, *LEARNING),
(*PERCEPTION(PSYCHOLOGY), CYBERNETICS),
(*LEARNING MACHINES, ANALYSIS); ARTIFICIAL
INTELLIGENCE, MATHEMATICAL MODELS, AUTOMATA,
MEMORY, STABILITY, CONTROL SYSTEMS, GREAT
BRITAIN (U)

RESEARCH IS SUMMARIZED ON MODELS THAT DESCRIBE THE
LEARNING OF A STRUCTURED SKILL AND ON SIMULATIONS OF
POPULATIONS OF AUTOMATA THAT BECOME MORE COMPLEX AS
THEY DEVELOP. APPLICABILITY AND LIMITATIONS ON A
SIMPLE LEARNING MODEL BASED ON TERMS OF CONTINUOUS,
INFORMATION-LIKE MEASURES ARE DISCUSSED. THE MODEL
CONSIDERS THE CONTRIBUTION FROM LEARNING OF THE I-TH
SKILL TO LEARNING OF THE J-TH. LIMITATIONS ARISE
FOR THE DESCRIPTION OF LEARNING OF HIGHER-ORDER
CONCEPTS. THE RELEVANCE OF STATISTICAL AND
HOMEOSTATIC APPROACHES TO THE DESCRIPTION OF LEARNING
AND ADAPTATION IS CONSIDERED; EACH IS VIEWED AS
CONTRIBUTING TO THE CHARACTERIZATION OF A REAL-LIFE
POPULATION OF ORGANISMS. THE SIMULATION MODEL
SHOWS THAT INDIVIDUAL AUTOMATA DO NOT LEARN ON THEIR
OWN BUT IN COOPERATING GROUPS. THE ELABORATE
POPULATION THAT IS POSTULATED SHOWS STABILITY OVER A
LARGER RANGE OF COST PARAMETER VALUES IN AN
UNCONSTRAINED ENVIRONMENT THAN IN A CONSTRAINED
ENVIRONMENT. A GREGARIOUS AUTOMATON IS DESCRIBED
THAT HAS A SENSORY SYSTEM (SENSITIVITY TO DENSITY
OF POPULATION) AND A MEMORY SYSTEM; SIGNIFICANCE IS
ASSOCIATED WITH PROPERTIES THAT REMAIN INVARIANT OR
EXHIBIT REGULAR AND CORRELATED TRANSFORMATION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-632 189 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
EFFECTS OF TRAINING RESPONSE MODE, TEST FORM, AND
MEASURE ON ACQUISITION OF SEMI-ORDERED FACTUAL
MATERIALS. (U)
DESCRIPTIVE NOTE: RESEARCH MEMO.,
APR 61 72p FOLLETTIE, JOSEPH F. I
REPT. NO. HUMRRO-24

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING METHODS, EFFECTIVENESS),
(*MILITARY TRAINING, TEACHING METHODS), RETENTION,
TEACHING MACHINES, LEARNING, MILITARY PERSONNEL,
TEXTBOOKS, STATISTICAL DATA, STATISTICAL ANALYSIS (U)

FINDINGS SUGGEST NO DIFFERENCE BETWEEN LIVE AND
TAPED LECTURE, A SIGNIFICANT ADVANTAGE OF READ
MATERIAL OVER HEARD MATERIAL, A SIGNIFICANT ADVANTAGE
OF SELF-PACED READING OVER CLASS-PACED READING, AND A
SIGNIFICANT ADVANTAGE OF THE PLAIN BOOK FORMAT OVER
THE SCRAMBLED BOOK FORMAT. RESULTS ALSO SUGGEST
THAT RECOGNITION FROM TESTS BASED ON NEO-ROTE
CONTENTS MIGHT BE USED IN LIEU OF RECALL FORM TESTS
IN THAT THERE IS A GENERALLY STABLE RELATIONSHIP
BETWEEN THE TWO TEST FORMS. THE RESEARCH WAS
UNDERTAKEN TO FIND A MODIFIED SCRAMBLED BOOK
TREATMENT WHICH WOULD SHOW UP AS WELL AS A PLAIN BOOK
TREATMENT. THE SEARCH WAS UNSUCCESSFUL.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 462 5/9

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
ANALYSIS OF INSTRUCTIONAL SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. (TECHNICAL MEMO.),
APR 66 267P COGSWELL, JOHN F. ;BRATTEN,
J. E. ;EGBERT, R. E. ;ESTAVAN, D. P. ;YETT, F.
A. ;
REPT. NO. TM-1493/201/00.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPT. ON NEW SOLUTIONS TO
IMPLEMENTING INSTRUCTIONAL MEDIA THROUGH ANALYSIS
AND SIMULATION OF SCHOOL ORGANIZATION, SEE ALSO
AD-427 752, AD-436 528, AD-620 663, PB-167 675,
PB-169 043.

DESCRIPTORS: (*EDUCATION, *TEACHING MACHINES),
(*PROGRAMMED INSTRUCTION, ANALYSIS), COMPUTERS,
STUDENTS, MODELS(SIMULATIONS),
PROGRAMMING(COMPUTERS), DATA PROCESSING SYSTEMS,
AUTOMATION, SCHEDULING, SIMULATION, LEARNING,
SYSTEMS ENGINEERING (U)

IDENTIFIERS: SCHOOLS, SYSTEMS ANALYSIS, EDSIM (U)

THE MAJOR FINDINGS INCLUDE THE IDENTIFICATION OF
TWO WAYS FOR USING SYSTEM ANALYSIS IN EDUCATION, THE
SPECIFICATION OF PROCEDURES FOR CONDUCTING ANALYSES
OF INSTRUCTIONAL SYSTEMS, AND IMPLICATIONS FOR SCHOOL
ORGANIZATION. ALTHOUGH THERE IS A DEFINITE TREND IN
SECONDARY EDUCATION TO SEARCH OUT AND INTRODUCE WAYS
TO ALTER SCHOOL ORGANIZATIONS SO THAT THE INDIVIDUAL
DIFFERENCES AMONG STUDENTS CAN BE ACCOMMODATED, NO
SCHOOL HAS YET EVOLVED AN ORGANIZATION TO
SUCCESSFULLY MEET THIS OBJECTIVE. SCHOOLS STRIVING
IN THIS DIRECTION ARE PRESENTLY BLOCKED BECAUSE THEY
LACK TWO MAJOR RESOURCES: (1) ADEQUATE SELF-
STUDY INSTRUCTIONAL MATERIALS, AND (2) ADEQUATE
SYSTEMS TO PROVIDE INFORMATION TO INSTRUCTORS,
COUNSELORS, AND ADMINISTRATORS ABOUT THE STATUS OF
STUDENTS AS INDIVIDUALS. RECOMMENDATIONS FOR
ATTACKING THESE PROBLEMS GROWING OUT OF THE STUDY
INCLUDE: (1) CONTINUED DEVELOPMENT OF THE
COMPUTER-BASED SYSTEM TO ASSIST STUDENTS AND
COUNSELORS IN ACADEMIC PLANNING THAT WAS STARTED IN
THE PROJECT; (2) CONTINUED STUDY OF THE USE OF
INFORMATION PROCESSING IN THE CLASSROOM TO DESIGN
SYSTEMS THAT WILL COLLECT, STORE, AND DISPLAY STUDENT
INFORMATION SO THAT IT CAN BE USED IN THE IMMEDIATE
INSTRUCTIONAL PROCESS; (3) IN-SERVICE TRAINING OF
INFLUENTIAL SCHOOL PERSONNEL IN THE SKILLS OF
DESIGNING INDIVIDUALIZED COURSE MATERIALS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 568 5/9
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
PROGRAMMED INSTRUCTION: A PLAN OF RESEARCH. (U)
DESCRIPTIVE NOTE: RESEARCH MEMO.,
MAY 61 51p MCCRYSTAL, THOMAS J. :

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•PROGRAMMED INSTRUCTION, SCIENTIFIC
RESEARCH), STUDENTS, TRAINING DEVICES, DISPLAY
SYSTEMS, TEACHING MACHINES (U)

CONTENTS: ELEMENTS OF PROGRAMMED INSTRUCTION,
SUMMARY OF PREVIOUS INVESTIGATIONS:
INVESTIGATIONS OF PROGRAM STEP SIZE, INVESTIGATIONS
OF PACING, INVESTIGATIONS OF PROMPTING,
INVESTIGATIONS OF RESPONSE MODES, INVESTIGATIONS OF
FEEDBACK, INVESTIGATIONS OF EXPLANATIONS, PROGRAM
VARIABLES AVAILABLE FOR STUDY: STEP-ASSOCIATED
VARIABLES, PROMPTING AND CUEING VARIABLES, RESPONSE -
RELATED VARIABLES, FEEDBACK AND REINFORCEMENT
VARIABLES, PROGRAM CONFIGURATION VARIABLES,
PROGRAMMED INSTRUCTION RESEARCH APPARATUS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 576 9/2
WASHINGTON UNIV SEATTLE DEPT OF ELECTRICAL
ENGINEERING
MACHINE LEARNING FOR GENERAL PROBLEM SOLVING, (U)
DESCRIPTIVE NOTE: REPT. FOR 1964-65,
65 95P JOHNSON, DAVID L. ;
CONTRACT: AF-AFOSR-939-65,
MONITOR: AFOSR , 66-0835

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*LEARNING MACHINES, *PROBLEM
SOLVING), (*ARTIFICIAL INTELLIGENCE, *DIGITAL
COMPUTERS), TRIGONOMETRY, EQUATIONS, GAME THEORY,
LEARNING, ADAPTIVE SYSTEMS, ALGEBRAS, COMPUTER
LOGIC (U)

PART I DESCRIBES PROGRESS IN RESEARCH RELEVANT TO
PROBLEM SOLVING AND LEARNING USING TRIGONOMETRIC
IDENTITIES AND LOGICAL EQUATIONS. THE WORK
PREVIOUSLY DESCRIBED (AD-608 544) DEALING WITH
TRIGONOMETRIC PROOF LEARNING HAS BEEN ANALYZED AND
EXTENDED WITH THE GENERAL SOLUTION AND LEARNING
APPROACH APPLIED TO PROOFS OF LOGICAL EQUATIONS.
ALSO INCLUDED IS A BRIEF DESCRIPTION OF WORK WHICH
INVESTIGATES CONCEPT FORMATION MODELED IN ONE SENSE
AFTER THE WORK OF PIAGET. PART II RELATES THE
RESEARCH IN TREE PRUNING AS RELATED TO COMPUTERS AND
GAME PLAYING. RECENT WORK HAS EMPHASIZED LEARNING
PROCESSES INDEPENDENT OF SCORING FUNCTIONS.
COMPARISON IS MADE BETWEEN HUMAN PLAY AND MACHINE
PLAY IN SPECIFIC GAME ENVIRONMENTS. PART II OF
THE REPORT DESCRIBES EVALUATION OF THE RESEARCH GOAL
OF EXTENDING THE PROBLEM SOLVING AND LEARNING
PROCESSES INTO THE FIELD OF INTEGRAL CALCULUS. IT
WAS DETERMINED, AFTER CONSIDERABLE EXPERIMENTATION
AND RESEARCH, THAT MORE USEFUL RESEARCH EXPENDITURE
COULD BE MADE IN INVESTIGATIONS OF OTHER LEARNING
AREAS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 609 5/9
ELECTRONIC SYSTEMS DIV L G HANSCOM FIELD MASS DECISION
SCIENCES LAB
DIRECT VS INDIRECT ASSESSMENT OF SIMPLE KNOWLEDGE
STRUCTURES. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT. MAY 64-JAN 65.
MAR 66 SSP MASSENGILL, H. EDWARD ; SHUFORD,
EMIR H. , JR. ;
PROJ: AF-2806,
TASK: 280609,
MONITOR: ESD , TR-65-542

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•EDUCATION, TEST METHODS), DECISION
MAKING, PERFORMANCE (HUMAN), PROGRAMMED
INSTRUCTION, COST EFFECTIVENESS, PROBABILITY,
INSTRUCTORS, MATHEMATICAL ANALYSIS (U)

THE REPORT COMPARES TWO TYPES OF CLASSROOM TESTING
IN TERMS OF EFFICACY IN GUIDING INSTRUCTION. ONE
TYPE OF TESTING IS THE TRADITIONAL INDIRECT METHOD
BASED ON THE OBSERVATION OF CHOICES. THE OTHER
TYPE IS THE DIRECT METHOD BASED ON ADMISSIBLE
PROBABILITY MEASUREMENT. THE GENERAL FINDING IS
THAT THE DIRECT METHODS ALWAYS PERFORM AS WELL AS AND
IN MOST CASES BETTER THAN THE INDIRECT METHODS.
THIS DEFICIENCY IN THE INDIRECT METHOD CAN BE
ALLEVIATED IN THEORY BY INTRODUCING REDUNDANCY INTO
THE TEST AND ASKING THE SAME QUESTION OVER AND OVER
AGAIN. THE PERFORMANCE OF INDIRECT METHODS DEPENDS
IN A VERY CRITICAL MANNER UPON THE INFORMATION
AVAILABLE TO THE INSTRUCTOR FROM OTHER SOURCES ABOUT
THE CURRENT STATE OF KNOWLEDGE OF EACH STUDENT. THE
PERFORMANCE OF THE DIRECT METHODS IS UNAFFECTED BY
THIS. THE GAIN IN EFFECTIVENESS ACHIEVED BY USING
DIRECT METHODS MUST BE BALANCED OFF AGAINST THE COST
OF USING THESE NEW METHODS. A DIRECT METHOD MAY
REQUIRE MORE STUDENT TIME PER ITEM THAN DOES AN
INDIRECT METHOD. THIS, HOWEVER, MAY BE MORE THAN
COMPENSATED FOR BY THE REQUIREMENT FOR REDUNDANCY
WHEN USING THE INDIRECT METHOD. IN ADDITION, SINCE
A DIRECT METHOD DOES NOT REQUIRE ADDITIONAL
INFORMATION FROM THE INSTRUCTOR AS TO THE CURRENT
STATE OF KNOWLEDGE OF EACH STUDENT, THE POSSIBILITY
EXISTS THAT MUCH LARGER CLASSES MAY BE TAUGHT WITH NO
LOSS IN EFFECTIVENESS THUS IMPLYING EVEN FURTHER
ECONOMIC BENEFITS FROM THE USE OF DIRECT METHODS TO
GUIDE CLASSROOM INSTRUCTION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-632 943 5/9

SYSTEM RESEARCH LTD RICHMOND (ENGLAND)

RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS
WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA
FOR ADAPTATION. (U)

DESCRIPTIVE NOTE: ANNUAL SUMMARY REPT, NO. 4, 1 APR 63-
31 MAR 64.

APR 64 303P PASK, GORDON I

CONTRACT: AF 61(052)-402,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 001.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN),
CYBERNETICS, TEACHING METHODS, MAN-MACHINE
SYSTEMS, LEARNING, TRAINING,
REACTION(PSYCHOLOGY), REFLEXES, GREAT
BRITAIN (U)

PART 1 OPENS WITH A BRIEF RESUME OF THE DYNAMIC AND
STRUCTURAL ASSUMPTIONS UNDERLYING THE CYBERNETIC
MODEL, AND IT CONTINUES WITH A SURVEY OF THE
CONDITIONS THAT NEED TO BE SATISFIED IN ORDER TO
DESIGN (RATHER THAN 'INTUIT'), A MACHINE CAPABLE
OF MAINTAINING STABLE INTERACTION WITH A HUMAN
OPERATOR. THE REMAINDER IS CONCERNED WITH
DESCRIBING AND INTERPRETING THE EXPERIMENTS ACTUALLY
CONDUCTED. PART 2 CONSIDERS THE IMPLICATIONS OF
THESE FINDINGS IN GREATER DETAIL, AND WITH SPECIAL
REFERENCE TO THE PROBLEM OF DESIGNING A PRACTICABLE
GROUP TUITION SYSTEM, BECAUSE OF THE NEED FOR
DYNAMIC INTERACTION. SPECIAL EMPHASIS IS GIVEN TO THE
POSSIBILITY OF DEVISING A GROUP SYSTEM IN WHICH
STUDENTS AND TEACHERS ALIKE CAN ALL BE PROVIDED WITH
THIS FACILITY IN CONTROLLED FORM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-632 944 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
AN ADAPTIVE AUTOMATION FOR TEACHING SMALL GROUPS,

(U)

61 14p PASK, G. ; LEWIS, B. N. ;
CONTRACT: AF 61(052)-402.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*TEACHING MACHINES, GROUP DYNAMICS),
(*GROUP DYNAMICS, TEACHING METHODS), (*TEACHING
METHODS, TEACHING MACHINES), SOCIAL COMMUNICATION,
CYBERNETICS, LEARNING, FEASIBILITY STUDIES,
GREAT BRITAIN, AUTOMATA

(U)

IT WAS FIRST ARGUED THAT THE AUTOMATED TEACHING OF
SMALL GROUPS REQUIRES, FOR MOST SKILLS, A RATHER
SPECIAL KIND OF ADAPTIVE AUTOMATION WHICH CAN
ORGANISE THE GROUP MEMBERS BY MANIPULATING THEIR
CHANNELS OF COMMUNICATION. AN EXAMPLE OF SUCH AN
AUTOMATON WAS THEN DESCRIBED AND ITS POTENTIALITIES
POINTED OUT. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-633 000 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS
WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA
FOR ADAPTION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL SUMMARY REPT. NO. 2, 1
APR 61-31 MAR 62,
APR 62 142P PASK, GORDON ;
CONTRACT: AF 61(052)-402,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-262 972.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN),
(*TEACHING METHODS, THEORY), GROUP DYNAMICS,
TRAINING, CYBERNETICS, LEARNING, DECISION
MAKING, SOCIAL COMMUNICATION, GREAT BRITAIN (U)

TOPICS INCLUDE: THE DISTRIBUTION OF CONTROL IN
DECISION-MAKING GROUPS, INTERACTION BETWEEN A GROUP
OF SUBJECTS AND AN ADAPTIVE AUTOMATON TO PRODUCE A
SELF-ORGANISING SYSTEM FOR DECISION-MAKING, REVIEW OF
EXPERIMENTAL PROCEDURE, COMMENTS ON AN INDETERMINACY
THAT CHARACTERISES A SELF-ORGANISING SYSTEM,
STRATEGIES OF COMMUNICATION, A SIMPLE ADAPTIVE
TEACHING MACHINE, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-633 001 5/9
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
RESEARCH ON THE DESIGN OF ADAPTIVE TEACHING SYSTEMS
WITH A CAPABILITY FOR SELECTING AND ALTERING CRITERIA
FOR ADAPTATION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL SUMMARY REPT. NO. 3, 1
APR 62-31 MAR 63,
APR 63 99P PASK, GORDON ;
CONTRACT: AF 61(052)-402.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-633 000.

DESCRIPTORS: (*TEACHING MACHINES, DESIGN),
(*TEACHING METHODS, THEORY), LEARNING,
CYBERNETICS, ANALYSIS, GREAT BRITAIN, GROUP
DYNAMICS (U)

PART I DESCRIBES SOME RESULTS OBTAINED FROM THE
FURTHER ANALYSIS OF DATA FROM THE ADAPTIVELY
STABILIZED GROUP INSTRUCTION SYSTEM THAT SUGGESTS A
NUMBER OF ALGORITHMS FOR THE CONTROL OF GROUP
TEACHING SYSTEMS WHETHER OR NOT THEY ARE ADAPTIVELY
STABILIZED. PART II DESCRIBES THE BACKGROUND
PHILOSOPHY OF THE INDIVIDUAL ADAPTIVE TEACHING
SYSTEMS. A PAIR OF SYSTEMS ARE CONSIDERED IN
DETAIL. ONE OF THESE WAS REALIZED AS A PHYSICAL
DEVICE AND IS IN USE. THE OTHER HAS BEEN BUILT BUT
ITS DESIGN IS BEING MODIFIED. FINALLY THERE IS A
BRIEF DISCUSSION OF THE RESEARCH IN PROGRESS, USING
THESE MACHINES, AND OF VARIOUS HYPOTHESES THAT HAVE
BEEN ADVANCED CONCERNING THE STRUCTURE OF DIFFERENT
SKILLS AND ITS INFLUENCE UPON THEIR ACQUISITION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-634 301 5/9 16/1
HUMAN RESOURCES RESEARCH OFFICE GEORGE WASHINGTON UNIV
ALEXANDRIA VA
DEVELOPMENT OF TECHNICAL TRAINING MATERIALS FOR NIKE
HERCULES JUNIOR OFFICERS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 66 46P HAVERLAND, EDGAR M. I
REPT. NO. HUMRRO-TR-66-6
CONTRACT: DA-44-188-ARO-2,
PROJ: DA-2J024701A712-01.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*GUIDED MISSILE PERSONNEL, TRAINING),
(*PROGRAMMED INSTRUCTION, CHECKOUT PROCEDURES),
GUIDED MISSILES(SURFACE-TO-AIR), TRAINING DEVICES,
EFFECTIVENESS, OFFICE PERSONNEL, LEARNING (U)
IDENTIFIERS: NIKE-HERCULES (U)

THE CHECKS AND PROCEDURES NECESSARY TO DETERMINE
WHETHER THE MAJOR FUNCTIONS OF THE NIKE HERCULES
FIRE CONTROL SYSTEM COULD BE SATISFACTORILY
ACCOMPLISHED WERE CHOSEN, AND PROGRAMED INSTRUCTIONAL
MATERIALS WERE WRITTEN TO TEACH JUNIOR OFFICERS THE
RELEVANT TECHNICAL INFORMATION. EVALUATION OF
THESE MATERIALS INDICATED (1) THAT THEY TAUGHT A
SUBSTANTIAL AMOUNT OF TECHNICAL INFORMATION
ADDITIONAL TO THAT TAUGHT IN THE OFFICER BASIC
COURSE (44-A-C20) AT THE U.S. ARMY AIR
DEFENSE SCHOOL, AND (2) THAT MORE TECHNICAL
INFORMATION WAS LEARNED FROM THE SAMOFF IV
PROGRAMED INSTRUCTION THAN WAS LEARNED FROM DIRECTED
STUDY OF EXISTING ARMY REFERENCE MATERIAL.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-634 483 6/4 5/10 9/2
WESTERN MANAGEMENT SCIENCE INST UNIV OF CALIFORNIA LOS
ANGELES
UTILIZATION OF MEMORY IN CONCEPT LEARNING SYSTEMS, (U)

APR 66 SIP HUNT, EARL I
REPT. NO. WMSI WORKING PAPER-99,
CONTRACT: NONR-233(75),
PROJ: NR-047-041.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TEXT OF PAPER PRESENTED AT THE
ANNUAL CARNEGIE INST. OF TECH. SYMPOSIUM ON
COGNITION(2), APRIL 7-8, 1966.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, MEMORY),
(*MEMORY, *LEARNING MACHINES), LEARNING,
PROGRAMMING(COMPUTERS), PATTERN RECOGNITION (U)

AS PART OF A SERIES IN ARTIFICIAL INTELLIGENCE
EXPERIMENTS, FOUR DIFFERENT COMPUTER PROGRAMS FOR
CONCEPT LEARNING WERE TESTED ON FIVE PROBLEMS OF
VARYING COMPLEXITY. THE AMOUNT OF INFORMATION
WHICH A PROGRAM COULD STORE WHILE SOLVING THE PROBLEM
WAS VARIED INDEPENDENTLY. PROGRAM PERFORMANCE
COULD BE DESCRIBED AS A FUNCTION OF THE LOCATION OF A
GIVEN STUDY IN AN ABSTRACT SPACE DEFINED BY PROBLEM
COMPLEXITY AND THE AMOUNT OF MEMORY AVAILABLE. THE
RESULTS WERE DISCUSSED IN TERMS OF PREVIOUS WORK ON
CONCEPT LEARNING AND FOR THEIR IMPLICATIONS IN THE
GENERAL FIELDS OF ARTIFICIAL INTELLIGENCE AND THE
PSYCHOLOGY OF HUMAN LEARNING. (AUTHOR) (U)

UNCLASSIFIED

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 001 5/9
CINCINNATI UNIV OHIO
AN EXPERIMENTAL COMPARISON OF AN INTRINSICALLY
PROGRAMMED TEXT AND A NARRATIVE TEXT. (U)
DESCRIPTIVE NOTE: FINAL REPT., SEP 64-SEP 65,
MAR 66 32P SENTER, R. J. ; ABMA, JOHN S. ;
JOHNSON, KIRK A. ; MORGAN, ROSS L. ;
CONTRACT: AF 33(615)-1046,
PROJ: AF-1710,
TASK: 171007,
MONITOR: AMRL TR-65-227

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, TRAINING
DEVICES), TEACHING METHODS, PERFORMANCE TESTS,
MATHEMATICS, READING, PERFORMANCE (HUMAN),
LEARNING, STUDENTS, TIME STUDIES, ANALYSIS OF
VARIANCE (U)
IDENTIFIERS: BRANCHING TESTS (U)

THE STUDY COMPARED THREE METHODS OF INSTRUCTION IN
BINARY AND OCTAL ARITHMETIC, I.E., (1) NORMAN
CROWDER'S BRANCHED PROGRAMED TEXT, THE
ARITHMETIC OF COMPUTERS, (2) ANOTHER VERSION
OF THIS TEXT MODIFIED SO THAT SUBJECTS COULD NOT SEE
THE INSTRUCTIONAL MATERIAL WHILE ANSWERING
'BRANCHING' QUESTIONS, AND (3) A NARRATIVE TEXT
VERSION PRESENTING THE SAME CONTENT MATERIAL, THE
PRINCIPAL BEHAVIORAL MEASURE WAS RELATIVE PERFORMANCE
ON A PRE- AND POSTTRAINING CRITERION TEST, THE
RESULTS INDICATED THAT PROHIBITING VISUAL CONTACT
WITH INSTRUCTIONAL MATERIAL WHILE ANSWERING QUESTIONS
SIGNIFICANTLY INCREASED THE NUMBER OF ERRONEOUS
ALTERNATIVES SELECTED BY THE SUBJECTS, BUT DID NOT
SIGNIFICANTLY ALTER THE AMOUNT OF LEARNING MANIFESTED
NOR THE TIME NECESSARY TO COMPLETE TRAINING, THE
PROGRAMED INSTRUCTIONAL METHODS RESULTED IN
SIGNIFICANTLY GREATER IMPROVEMENT ON THE CRITERION
TEST THAN WAS ATTAINED BY USING THE NARRATIVE TEXT,
THE TIME TO COMPLETE INSTRUCTION WAS SIGNIFICANTLY
LESS WITH THE NARRATIVE TEXT VERSION OF THE MATERIAL,
ALTHOUGH, IN GENERAL, LESS INFORMATIONAL CONTENT
WAS IMPARTED WITH THE NARRATIVE TEXT, THE STUDY TIME
NECESSARY PER UNIT IMPROVEMENT WAS SIGNIFICANTLY LESS
WITH THAT VERSION, RECORDS WERE KEPT OF THE NUMBER
OF 'WRONG ANSWER' BRANCHES TAKEN BY THE SUBJECTS
RECEIVING INSTRUCTION VIA THE BRANCHED PROGRAMS,
ONLY ABOUT 68 OF THE TOTAL POSSIBLE 'WRONG'
BRANCHES WERE ACTUALLY TAKEN, (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 213 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A STUDY OF TWO METHODS FOR ADAPTING SELF-
INSTRUCTIONAL MATERIALS TO INDIVIDUAL
DIFFERENCES.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.

JUN 66 53p MELARAGNO, RALPH J. ;
REPT. NO. TM-2932/000/01,
CONTRACT: N00014-66-C0081,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TEACHING
METHODS), TRAINING DEVICES, LEARNING, STUDENTS,
EDUCATION, TEACHING MACHINES, TESTS, LINEAR
SYSTEMS, ANALYSIS OF VARIANCE

(U)

IDENTIFIERS: BRANCHING TESTS, PREDICTION

(U)

THE TWO-PHASE STUDY COMPARED TWO METHODS OF
ADAPTING SELF-INSTRUCTIONAL MATERIALS TO INDIVIDUAL
DIFFERENCES AMONG LEARNERS; THESE WERE COMPARED WITH
EACH OTHER AND WITH A CONTROL CONDITION INVOLVING
ONLY MINIMAL ADAPTATION. RESULTS OF THE EXPERIMENT
SUPPORT THREE CONCLUSIONS: (1) TRAINING TIMES
CAN BE REDUCED BY VARYING INSTRUCTION ON THE BASIS OF
LEARNERS' ABILITIES; (2) A BRANCHING STRATEGY CAN
REDUCE TRAINING TIME FURTHER THAN EITHER PREDICTION
OR LINEAR STRATEGIES; AND (3) WHEN BOTH AMOUNT
LEARNED AND TRAINING TIME ARE OF INTEREST, BRANCHING
IS SUPERIOR TO A LINEAR PRESENTATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-635 361 5/9
HARVARD UNIV CAMBRIDGE MASS
BLACKOUT RATIO AND OVERT RESPONSES IN PROGRAMED
INSTRUCTION: RESOLUTION OF DISPARATE RESULTS. (U)
AUG 65 6P KEMP, FREDERICK D. HOLLAND,
JAMES G. ;
CONTRACT: AF 19(628)-2404,
MONITOR: ESD TDR-65-355

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN JOURNAL OF EDUCATIONAL
PSYCHOLOGY V57 N2 P109-14 1966.

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, TEACHING
METHODS), RESPONSE, TEACHING MACHINES, TRAINING
DEVICES. LEARNING, TESTS (U)

THE BLACKOUT MEASURE, FOR THE DEGREE TO WHICH
MATERIAL IS PROGRAMED, WAS APPLIED TO 12 SETS OF
MATERIAL USED IN PREVIOUS STUDIES OF OVERT VS. COVERT
RESPONDING IN TEACHING-MACHINE PROGRAMS. BLACKOUT
RATIOS (8 TOTAL WORDS WHICH COULD BE REMOVED
WITHOUT AFFECTING ERROR RATE) RANGED FROM 11.18-
74.68. THE LOWEST 4 RATIOS (11.18-23.48)
WERE FOR PROGRAMS WHICH PREVIOUSLY DEMONSTRATED AS
ADVANTAGE FOR OVERT RESPONDING. THE REMAINING 8
RATIOS (31.08-74.68) WERE FOR PROGRAMS WHICH
PREVIOUSLY YIELDED NO RESPONSE-MODE DIFFERENCE.
MANY STUDIES HAVE FAILED TO FIND AN ADVANTAGE FOR
OVERT RESPONDING BECAUSE THE MATERIAL USED WAS
LARGELY UNPROGRAMED IN THAT ANSWERS WERE NOT
DEPENDENT UPON MUCH OF THE CONTENT OF THE MATERIAL.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-636 314 9/2 6/4
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
LEARNING MACHINES. (U)
63 20P PASK, GORDON ;
CONTRACT: AF 61(042)-640.

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT
CONGRESS OF THE INTERNATIONAL FEDERATION OF
AUTOMATIC CONTROL (2ND), BASLE, SWITZERLAND,
1963.

DESCRIPTORS: (LEARNING MACHINES, THEORY), BIONICS,
PROBABILITY, GREAT BRITAIN (U)

CONTENTS: MACHINE ORGANIZATION; THE MECHANISM
IN WHICH LEARNING MACHINES ARE REALIZED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-636 406 5/9

ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE USE OF PROGRAMMED LEARNING AND COMPUTER BASED
INSTRUCTION TECHNIQUES TO TEACH ELECTRICAL
ENGINEERING NETWORK ANALYSIS, (U)

JUL 66 BSP JOHNSON, ROGER L. ;

REPT. NO. R-297.

CONTRACT: DA-28-043-AMC-00073(E), NONR-3985(08)

PROJ: DA-20014501B31F,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *ELECTRICAL
ENGINEERING), COMPUTERS, LEARNING, STUDENTS,
EFFECTIVENESS, TEACHING METHODS, TRAINING,
PERFORMANCE(HUMAN), CIRCUITS, EFFECTIVENESS,
TEACHING MACHINES (U)

IDENTIFIERS: PLATO TEACHING SYSTEM (U)

TWO TYPES OF PROGRAMMED INSTRUCTION SEQUENCES
(INQUIRY AND TUTORIAL) WERE USED ON THE PLATO
SYSTEM TO TEACH ELECTRICAL NETWORK ANALYSIS (EE
322, UNIVERSITY OF ILLINOIS). TWO GROUPS OF
STUDENTS WERE SELECTED TO USE EACH OF THE TWO TYPES
OF INSTRUCTION. BOTH OF THE INSTRUCTION SEQUENCES
WERE TO PROVIDE THE SAME PERFORMANCE OBJECTIVES.
THE REPORT DESCRIBES THE DESIGN AND USE OF THE
INSTRUCTION ON THE PLATO TEACHING SYSTEM AND
SUMMARIZES THE PERFORMANCE OF THE STUDENTS WITH
RESPECT TO THE TWO METHODS OF TEACHING. THE STUDY
INDICATED THAT THE DESIRED PERFORMANCE OBJECTIVES
WERE OBTAINED SATISFACTORILY IN BOTH CASES.
ALTHOUGH IN CERTAIN ASPECTS THE INQUIRY TEACHING
PROGRAM EXHIBITED SOME ADVANTAGES, A TEACHING PROGRAM
WHICH COULD MAKE AVAILABLE ALL OF THE FACILITIES
CONTAINED IN THE PRESENT PROGRAMS WOULD BE MORE
DESIRABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-637 111 6/4 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
TRAINING PATTERN-RECOGNITION MACHINES. (U)
MAR 66 117P ARKADY, A. G. ISRAVERMAN, E. M. I
REPT. NO. FTD-TT-45-1699.
MONITOR: TT 66-62034

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF MONO.
OBUCHENIE MASHINY RASPOZNAVANIYU OBRAZOV, MOSKVA
1964. 110P.

DESCRIPTORS: (PATTERN RECOGNITION, *LEARNING
MACHINES), (*ARTIFICIAL INTELLIGENCE, LEARNING
MACHINES), BIONICS, USSR (U)

TRANSLATION OF RUSSIAN RESEARCH: TRAINING PATTERN-
RECOGNITION MACHINES.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-637 656 5/9 9/2
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
SOCRATES, A COMPUTER-BASED INSTRUCTIONAL SYSTEM IN
THEORY AND RESEARCH. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.
JUN 66 SSP STOLUROW, LAWRENCE M. ;
REPT. NO. TR-12.
CONTRACT: NONR 3985(04).

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (•PROGRAMMED INSTRUCTION,
•CYBERNETICS), DIGITAL COMPUTERS, TEACHING
METHODS, THEORY, LEARNING (U)
IDENTIFIERS: SOCRATES (U)

THE PAPER DESCRIBES A CYBERNETIC COMPUTER-BASED
INSTRUCTIONAL SYSTEM, SOCRATES, THE TEACHING MODEL
WHICH LED TO ITS DEVELOPMENT, AND SOME OF THE
RESEARCH ACCOMPLISHED WITH IT. THE ACRONYM,
SOCRATES, IS SYSTEM FOR ORGANIZING CONTENT TO
REVIEW AND TEACH EDUCATIONAL SUBJECTS.
IT CONSISTS OF A GROUP OF STUDENT INPUT-OUTPUT (I/
O) STATIONS WIRED TO A DIGITAL COMPUTER THROUGH A
RELAY RACK. IT IS A COMPUTER-BASED TUTORIAL SYSTEM
DESIGNED TO MEET THE REQUIREMENTS OF AN IDIOGRAPHIC
CONTINGENCY MODEL OF THE INSTRUCTIONAL PROCESS,
WHICH, THEREFORE, MAKES IT POSSIBLE TO PROVIDE HIGHLY
ADAPTIVE INDIVIDUALIZED INSTRUCTION TO SEVERAL
STUDENTS SIMULTANEOUSLY. THE MODEL DEFINES THE
PRESUMABLY CRITICAL DIMENSIONS OF INSTRUCTION AND
TREATS THESE AS SYSTEM FUNCTIONS. THE SYSTEM
PERMITS CONTROLLED IMPLEMENTATION OF THE MODEL AS
WELL AS THE COLLECTION OF DATA WHICH COULD LEAD TO
ITS FURTHER DEVELOPMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-637 894 9/2 5/5
LOCKHEED MISSILES AND SPACE CO SUNNYVALE CALIF
HUMAN FACTORS ASPECTS OF DIGITAL COMPUTER PROGRAMMING
FOR SIMULATOR CONTROL. (U)
65 10P SPESOCK, GILBERT J. LINCOLN,
ROBERT S. I

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN HUMAN FACTORS P473-82
OCT 1965.
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPILERS, HUMAN ENGINEERING),
(*PROGRAMMING(COMPUTERS), *HUMAN ENGINEERING),
DIGITAL COMPUTERS, SIMULATORS, CONTROL, DISPLAY
SYSTEMS, REAL TIME, PROGRAMMERS (U)

BECAUSE OF THE ENORMOUS PRESENT DAY EFFORT DEVOTED
TO THE PREPARATION OF DIGITAL COMPUTER PROGRAMS,
SPECIAL ATTENTION SHOULD BE GIVEN TO THE HUMAN
FACTORS ASPECTS OF PROGRAM DEVELOPMENT. CURRENTLY
AVAILABLE PROGRAM COMPILERS REPRESENT A SIGNIFICANT
APPLICATION OF CERTAIN HUMAN FACTORS PRINCIPLES, BUT
ARE NOT GENERALLY APPLICABLE TO PROBLEMS OF 'REAL
TIME' PROGRAMMING. SINCE THE CREATION OF
APPROPRIATE COMPILERS IS IMPORTANT TO SIMULATION
METHODOLOGY, THE REPORT INCLUDES A DETAILED
DESCRIPTION OF A 'REAL TIME' COMPILER DEVELOPED FOR
DISPLAY/CONTROL SIMULATION ON A SMALL COMPUTER IN A
HUMAN FACTORS LABORATORY. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-638 676 5/9 9/2
ILLINOIS UNIV URBANA TRAINING RESEARCH LAB
PROJECT SOCRATES: A FLEXIBLE RESEARCH FACILITY TO BE
USED IN STUDIES OF PREPROGRAMED SELF-INSTRUCTION
(PSI) AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION
(SPIE). (U)
DESCRIPTIVE NOTE: FINAL REPT.
SEP 66 31P STOLUROW, LAWRENCE M. ;
CONTRACT: NONR-3985(04),
PROJ: NR-154-239,

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, SCIENTIFIC
RESEARCH), (*EDUCATION, SCIENTIFIC RESEARCH),
(*TEACHING MACHINES, LEARNING), PSYCHOLOGY,
CYBERNETICS, TEACHING METHODS, STUDENTS,
COMPUTERS, BIBLIOGRAPHIES (U)
IDENTIFIERS: SOCRATES (U)

THIS IS THE FINAL REPORT OF WORK ACCOMPLISHED ON
PROJECT SOCRATES (SYSTEM FOR ORGANIZING
CONTENT TO REVIEW AND TEACH EDUCATIONAL
SUBJECTS). THE PROJECT CONTRIBUTED TO THE
DEVELOPMENT AND OPERATION OF A COMPUTER-BASED
FACILITY FOR PSYCHOLOGICAL RESEARCH ON VARIABLES
ASSOCIATED WITH PRE-PROGRAMED SELF-INSTRUCTION (PSI)
AND SELF-PROGRAMED INDIVIDUALIZED EDUCATION (SPIE).
THE RESEARCH WAS CONCERNED WITH THE DEVELOPMENT OF
PSYCHOLOGICAL THEORY AND RESEARCH RELATING TO THE
DESIGN AND USE OF A COMPUTER-BASED INSTRUCTIONAL
SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-639 714 5/9 9/2
VIRGINIA POLYTECHNIC INST BLACKSBURG
ANALYSIS OF COMPUTER SCIENCE CURRICULA IN AMERICAN
COLLEGES AND UNIVERSITIES. (U)
AUG 66 SIP ARRET, BRUCE JAY ; HAHN,
BRUCE NORMAN ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
MARYLAND UNIV., COLLEGE PARK.

DESCRIPTORS: (*COMPUTERS, *EDUCATION),
UNIVERSITIES, ANALYSIS, PROGRAMMING (COMPUTERS),
ARTIFICIAL INTELLIGENCE, CYBERNETICS, MATHEMATICAL
PROGRAMMING (U)

REACTIONS FROM MANY COLLEGES AND UNIVERSITIES
THROUGHOUT THE UNITED STATES INDICATE THAT THE
COMPUTER SCIENCE FIELD, AS A PROGRAM OF GUIDED
INSTITUTIONAL STUDY, IS IN ITS EARLIEST INFANCY.
MANY SCHOOLS NOT NOW OFFERING DEGREES HAVE PLANS
FOR PROGRAMS. SCHOOLS ALREADY OFFERING DEGREES ARE
CONSTANTLY CHANGING, ADDING AND DROPPING COURSES, AND
SHIFTING SCOPE. COMPARISON IS DIFFICULT BECAUSE OF
A LACK OF UNIFORMITY DUE TO THE NEWNESS OF THE
SCIENCE, DIFFERENCES IN CONCEPT OF THE FIELD AND ITS
OBJECTIVES, COMMUNICATIONS DIFFICULTIES CREATED BY
THE VAGUENESS OF THE LANGUAGE, AND STRUCTURAL
PROBLEMS CONFRONTING NEW OR PROPOSED DEPARTMENTS
MAKING THEIR FUTURE STATUS UNPREDICTABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-640 188 9/2 6/4
PURDUE UNIV LAFAYETTE IND CONTROL AND INFORMATION SYSTEMS
LAB
A HEURISTIC APPROACH TO REINFORCEMENT LEARNING
CONTROL SYSTEMS. (U)
DESCRIPTIVE NOTE: REVISED ED.,
APR 65 12P WALTZ, M. D. : FU, K. S. :
CONTRACT: AF-AFOSR-62-351, NSF-GP-2183
MONITOR: AFOSR 66-1509

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN IEEE TRANSACTIONS ON
AUTOMATIC CONTROL VACIO N4 P390-8 OCT 1965.
SUPPLEMENTARY NOTE: REVISION OF MANUSCRIPT SUBMITTED 3
NOV 64. SEE ALSO AD-611 935.

DESCRIPTORS: (*LEARNING MACHINES, *CONTROL SYSTEMS),
ARTIFICIAL INTELLIGENCE, BIONICS, ANALOG-DIGITAL
COMPUTERS, SET THEORY, PROBABILITY (U)
IDENTIFIERS: REINFORCEMENT (PSYCHOLOGY) (U)

THE PAPER DESCRIBES A LEARNING CONTROL SYSTEM USING
A REINFORCEMENT TECHNIQUE. THE CONTROLLER IS
CAPABLE OF CONTROLLING A PLANT THAT MAY BE NONLINEAR
AND NONSTATIONARY. THE ONLY A PRIORI INFORMATION
REQUIRED BY THE CONTROLLER IS THE ORDER OF THE PLANT.
THE APPROACH IS TO DESIGN A CONTROLLER WHICH
PARTITIONS THE CONTROL MEASUREMENT SPACE INTO SETS
CALLED CONTROL SITUATIONS AND THEN LEARNS THE BEST
CONTROL CHOICE FOR EACH CONTROL SITUATION. THE
CONTROL MEASUREMENTS ARE THOSE INDICATING THE STATE
OF THE PLANT AND ENVIRONMENT. THE LEARNING IS
ACCOMPLISHED BY REINFORCEMENT OF THE PROBABILITY OF
CHOOSING A PARTICULAR CONTROL CHOICE FOR A GIVEN
CONTROL SITUATION. THE SYSTEM WAS STIMULATED ON AN
IBM 1710-GEDA HYBRID COMPUTER FACILITY.
EXPERIMENTAL RESULTS OBTAINED FROM THE SIMULATION
ARE PRESENTED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-640 883 5/9

PENNSYLVANIA STATE UNIV UNIVERSITY PARK
THE CLASSROOM COMMUNICATOR (RAPID MASS
LEARNING).

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

OCT 50 33P CARPENTER, C. R. ;EGGLETON,
R. C. ;JOHN, F. T. ;CANNON, J. B. , JR

CONTRACT: N6ONR-269(07);

PROJ: NR-781-005, SDC-20-E-4

MONITOR: SPECDEVGEN 269-7-14

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (TEACHING MACHINES, EFFECTIVENESS),
(TEACHING METHODS, TEACHING MACHINES), DESIGN,
LEARNING

(U)

A REPORT IS PRESENTED OF THE PLANNING, DESIGN AND
CONSTRUCTION OF EXPERIMENTAL EQUIPMENT APPROPRIATE
FOR RESEARCH ON THE LEARNING PROCESS AND THE
EVALUATION OF COMPLEX INSTRUCTIONAL AND INFORMATIONAL
PROGRAMS. THE CLASSROOM COMMUNICATOR MAKES
POSSIBLE THE ADMINISTRATION OF MULTIPLE-CHOICE
OBJECTIVE TESTS, OR ATTITUDE SCALES, IN SUCH A WAY
THAT THE RESULTS ARE AVAILABLE DIRECTLY AFTER THE
CONCLUSION OF THE TEST. IN ADDITION, THE
INSTRUCTOR OR EXPERIMENTER CAN SEE IMMEDIATELY HOW
EACH INDIVIDUAL RESPONDS TO EACH ITEM IN THE TEST.
OTHER FEATURES OF THE SYSTEM WILL MAKE POSSIBLE NEW
KINDS OF EXPERIMENTATION IN THE LEARNING PROCESS.
THE PRE-DESIGN FUNCTIONAL REQUIREMENTS FOR THE
EQUIPMENT ARE GIVEN IN DETAIL. THE EQUIPMENT WHICH
HAS BEEN DESIGNED AND CONSTRUCTED TO MEET THESE
REQUIREMENTS IS DESCRIBED AND ILLUSTRATED. AN
EXPLANATION IS GIVEN OF HOW THE COMPONENTS OF THE
CLASSROOM COMMUNICATOR OPERATE.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-644 054 5/9

GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE

THE DESIGN OF INSTRUCTIONAL SYSTEMS.

(U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

NOV 66 92P SMITH, ROBERT G. ;

REPT. NO. HUMRRO-TR-66-18

CONTRACT: DA-44-188-ARO-2

PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*TRAINING, COST EFFECTIVENESS),
PROGRAMMED INSTRUCTION, TRAINING DEVICES, TRANSFER
OF TRAINING, SYSTEMS ENGINEERING, LEARNING,
STUDENTS, PERFORMANCE (HUMAN), TEACHING METHODS,
EFFICIENCY

(U)

THE REPORT, BASED ON AN EXTENSIVE SURVEY OF CURRENT
LITERATURE, DESCRIBES AND DISCUSSES A SYSTEM APPROACH
TO DESIGNING TRAINING AND CONSIDERS FACTORS BEARING
ON TRAINING EFFECTIVENESS. AN EFFICIENT
INSTRUCTIONAL SYSTEM IS CONCEIVED AS ONE IN WHICH THE
COMPONENTS FORM AN INTEGRATED WHOLE, ACHIEVING
MAXIMUM EFFECTIVENESS AT THE LEAST POSSIBLE COST.
COMPONENTS CONSIDERED IN THIS REPORT INCLUDE
PRESENTATION MEDIA, STUDENT MANAGEMENT, TECHNIQUES
FOR PRACTICING KNOWLEDGE AND PERFORMANCE, KNOWLEDGE
OF RESULTS, DIRECTING STUDENT ACTIVITIES TOWARD THE
GOALS OF THE TRAINING PROGRAM, AND TESTING AND
EVALUATING THE SYSTEM IN TERMS OF EFFICIENCY AND
COST. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-644 223 5/9 5/10 9/2
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
EFFECTS OF WRITTEN VERBALIZATION AND TIMING OF
INFORMATION ON PROBLEM SOLVING IN PROGRAMED LEARNING,
(U)
NOV 66 11P SEIDEL, ROBERT J. IROTBURG,
IRIS C. I
REPT. NO. HUMRRO PROFESSIONAL PAPER-6-66
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN JOURNAL OF EDUCATIONAL
PSYCHOLOGY V57 N3 P151-8 1966.

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
EFFECTIVENESS), (LEARNING,
PROGRAMMING(COMPUTERS)), PERFORMANCE(HUMAN),
ACHIEVEMENT TESTS, PROBLEM SOLVING, SCHEDULING (U)
IDENTIFIERS: VERBALIZATION (U)

TRAINING ON COMPUTER-PROGRAM (CP) WRITING WAS
GIVEN TO 60 HIGH SCHOOL STUDENTS IN A 3 X 2
FACTORIAL DESIGN CONCERNED WITH EFFECTS OF (A)
WRITING EXPLICITLY THE RULES USED IN CONSTRUCTING
THE CPS (B) WRITING THE NAMES OF THESE RULES IN
CONJUNCTION WITH WRITING CPS, OR (C) WRITING
ONLY THE CPS. THE OTHER FACTOR WAS PROMPTING VS.
CONFIRMATION. RESULTS INDICATED THAT: (A)
DURING LEARNING, PROMPTING WAS SIGNIFICANTLY
SUPERIOR TO CONFIRMATION, BUT A REVERSE TENDENCY
APPEARED IN THE CRITERION TESTS; (B) NAMING THE
RULES IN ADDITION TO WRITING CPS DURING TRAINING
AIDED LATER PERFORMANCE WHEN WRITING MORE COMPLEX
CPS ON THE CRITERION TESTS; (C) WRITING RULES
DURING TRAINING ACTUALLY HINDERED SS IN WRITING
CPS LATER ON THE CRITERION TESTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-644 534 5/2 9/2
NATIONAL SCIENCE FOUNDATION WASHINGTON D C
PROCEEDINGS OF THE 1965 CONGRESS INTERNATIONAL
FEDERATION FOR DOCUMENTATION, VOLUME II. (U)
OCT 65 248P

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE FROM SPARTAN BOOKS, 1250
CONN. AVE., N. W., WASHINGTON, D. C. 20036.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE
AMERICAN DOCUMENTATION INSTITUTE. PREPARED FOR
PRESENTATION AT MEETING AND CONGRESS (31ST)
WASHINGTON, D. C., U.S.A. OCTOBER 7-16, 1965. RESEARCH
SUPPORTED IN PART BY FEDERATION OF AMERICAN SOCIETIES
FOR EXPERIMENTAL BIOLOGY, WASHINGTON, D. C.
CONTRACT AF 49(638)-1561, REPORT AFOSR-67-0003.

DESCRIPTORS: (*DOCUMENTATION, SYMPOSIA),
EDUCATION, TRAINING, INFORMATION RETRIEVAL,
MANAGEMENT ENGINEERING (U)

CONTENTS: EDUCATION AND TRAINING OF
DOCUMENTALISTS; ORGANIZATION OF INFORMATION FOR
DOCUMENTATION; INFORMATION NEEDS OF SCIENCE AND
TECHNOLOGY; INFORMATION NEEDS OF SOCIETY;
PRINCIPLES OF DOCUMENTATION AND SYSTEMS DESIGN;
DOCUMENTATION AND THE FUTURE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-644 601 5/2 9/2
OFFICE OF NAVAL RESEARCH WASHINGTON D C
INFORMATION SYSTEMS SUMMARIES. (U)
DESCRIPTIVE NOTE: EDITION NO. 4.
SEP 64 93p
REPT. NO. ONR-ACR-123

UNCLASSIFIED REPORT

DESCRIPTORS: (•DATA PROCESSING SYSTEMS, REVIEWS),
(•COMPUTERS, DOCUMENTATION), INFORMATION THEORY,
LINGUISTICS, PATTERN RECOGNITION, BIONICS,
AUTOMATA, INFORMATION RETRIEVAL, MAN-MACHINE
SYSTEMS, ABSTRACTS, PROCESSING, LEARNING MACHINES (U)

CONTENTS: (A) GENERAL INFORMATION SCIENCES:
INFORMATION THEORY, REDUNDANCY, SYSTEM THEORY,
FUNCTION MODELING, AUTOMATA THEORY, (B) MACHINE
INTERACTION WITH HUMANS: MACHINE AIDED COGNITION
AND DISPLAY TECHNIQUES, INDEXING AND ABSTRACTING,
LINGUISTIC ANALYSIS, PATTERN RECOGNITION, (C)
IMPROVED MACHINES: GENERAL SYSTEMS AND
COMPONENTS, HYBRID SYSTEMS, MULTIPROCESSING,
IMPROVING MACHINES, AUTOMATIC CONTROL, TECHNIQUES AND
DEVICES. (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-645 121 5/9

GENERAL ELECTRIC CO SANTA BARBARA CALIF TEMPO
COMPUTER AUGMENTED LEARNING,

(U)

NOV 66 29P KINDRED, J. ;
REPT. NO. 66TMP-55

UNCLASSIFIED REPORT

DESCRIPTORS: (•LEARNING, TRAINING DEVICES),
(•TRAINING DEVICES, COMPUTERS), (•TEACHING
MACHINES, COMPUTERS), (•PROGRAMMED INSTRUCTION,
LEARNING), EDUCATION, STUDENTS

(U)

THE REPORT CONTAINS A DESCRIPTION AND SUMMARY OF
COMPUTER AUGMENTED LEARNING DEVICES AND SYSTEMS.
THE DEVICES ARE OF TWO GENERAL TYPES; PROGRAMMED
INSTRUCTION SYSTEMS BASED ON THE TEACHING MACHINES
PIONEERED BY PRESSEY AND DEVELOPED BY SKINNER,
AND THE SO-CALLED 'DOCILE' SYSTEMS THAT PERMIT
GREATER USER-DIRECTION WITH THE COMPUTER UNDER
STUDENT CONTROL. EVEN SYMPATHETIC CRITICISMS BY
PRACTITIONERS REVEAL LIMITED UNDERSTANDING OF THE
PSYCHOLOGY OF LEARNING AND KNOWING, EXPOSE POTENTIAL
RESTRICTIONS TO ADEQUATE SELECTION OF COMPUTER-BASED
CURRICULA, AND RECOGNIZE TECHNICAL HAZARDS THAT
IMPEDE THE DEVELOPMENT OF EFFECTIVE COMPUTERIZED
EDUCATIONAL TOOLS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 384 5/10 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES
BASIC PROBLEMS IN TEACHING FOR CREATIVITY, (U)
66 34p GUILFORD, J. P. I
CONTRACT: NONR-22A(20)

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN INSTRUCTIONAL MEDIA AND
CREATIVITY CHAP 3 P71-103 1966.

DESCRIPTORS: (CREATIVITY, TEACHING METHODS),
(STUDENTS, CREATIVITY), ATTITUDES, TEACHING
MACHINES, TRAINING DEVICES, EDUCATION, REASONING,
LEARNING, MEMORY, MOTIVATION, BEHAVIOR,
PROGRAMMED INSTRUCTION (U)

THE AUTHOR POINTS OUT THAT FROM VERY DIFFERENT
APPROACHES TO EDUCATIONAL PHILOSOPHY AND EDUCATIONAL
OPERATIONS, WE ARE AWARE OF THE GREAT NEED OF MORE
EMPHASIS UPON STUDENT INITIATIVE AND THE FULFILLMENT
OF THE STUDENT'S INTELLECTUAL NEEDS, UNDER THE
HEADING OF THE GOAL OF TEACHING FOR CREATIVITY.
THIS MEANS NOT ONLY TEACHING MORE IMAGINATIVELY BUT
ALSO PROMOTING BY TEACHING THE DEVELOPMENT OF
CREATIVE SKILLS AND CREATIVE ATTITUDES IN STUDENTS.
SINCE AN ARRAY OF TEACHING MEDIA ARE AVAILABLE AND
ARE PROBABLY HERE TO STAY, IT IS WELL THAT WE
CONSIDER HOW THEY MAY BE USED MORE CONSTRUCTIVELY
INsofar AS STUDENTS ARE CONCERNED, BOTH IN TERMS OF
TEACHING ORDINARY SUBJECT MATTER AND IN DEVELOPING
CREATIVE-THINKING SKILLS AND CREATIVE ATTITUDES. (U)

UNCLASSIFIED

JDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 422 5/8 5/10 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPERIMENTS IN COMPUTER-AIDED INDUCTIVE
REASONING.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

DEC 66 80P NEWMAN, J. R.; ROGERS, M. S.;
REPT. NO. TM-3227

UNCLASSIFIED REPORT

DESCRIPTORS: (MAN-MACHINE SYSTEMS, PROBLEM
SOLVING), (PROBLEM SOLVING, PERFORMANCE (HUMAN)),
(COMPUTERS, PROBLEM SOLVING), REASONING,
BEHAVIOR, SYMBOLS, LEARNING, EXPERIMENTAL
DESIGN, PSYCHOMETRICS

(U)

THE DOCUMENT REPORTS ON A PROGRAM OF RESEARCH ON
HUMAN PROBLEM-SOLVING BEHAVIOR WHEN THAT BEHAVIOR IS
BEING ASSISTED BY CERTAIN COMPUTER AND DISPLAY AIDS.
THE RESEARCH IS PARTICULARLY CONCERNED WITH PROBLEM
SOLVING THAT INVOLVES INDUCTIVE REASONING OR CONCEPT
FORMATION. PREVIOUS INVESTIGATIONS HAVE INDICATED
THAT HUMAN SUBJECTS USE A VARIETY OF SYSTEMATIC
OPERATIONS WHEN THEY ARE SOLVING SUCH PROBLEMS; ONE
PURPOSE OF THIS PROJECT IS TO CARRY OUT AN
EXPERIMENTAL ANALYSIS OF SOME OF THESE OPERATIONS AND
THEIR EXPLICIT USES. TO ACCOMPLISH THIS PURPOSE,
THE OPERATIONS ARE MADE AVAILABLE TO THE PROBLEM
SOLVER IN THE FORM OF COMPUTER AND DISPLAY AIDS SO
THAT HE CAN CALL FOR THEIR IMPLEMENTATION QUITE
EASILY. THE PROBLEM SOLVER IS THUS RELIEVED OF THE
BURDEN OF ACTUALLY CARRYING OUT THE DETAILS OF THE
OPERATIONS. FURTHERMORE, THROUGH THE COMPLETE
RECORDING OF THE USE OF THESE COMPUTER AIDS, SOME
ASPECTS OF THE PROBLEM-SOLVING PROCESS ARE
EXTERNALIZED FOR EXAMINATION BY THE RESEARCHER.
THE FIRST PART OF THIS REPORT OUTLINES THE GENERAL
METHOD AND RATIONALE OF THIS WORK AND ITS RELATION TO
OTHER RESEARCH. THE SECOND PART DESCRIBES FOUR
SPECIFIC EXPERIMENTS WITHIN THAT GENERAL FRAMEWORK.
GROUPS OF SUBJECTS WERE EXPOSED TO TWO MAJOR TYPES
OF CONCEPT PROBLEMS: CLASSIFICATION AND
RELATIONAL. THOSE SUBJECTS WHO WERE ALLOWED TO USE
THE COMPUTER AND DISPLAY AIDS (CALLED SYMBOL
MANIPULATION FUNCTIONS) IN SOLVING THE PROBLEMS
ACHIEVED SIGNIFICANTLY HIGHER PERFORMANCE THAN NON-
AIDED SUBJECTS. THE AIDS INCREASED IN USEFULNESS
WITH PROBLEM DIFFICULTY AND HAD THEIR GREATEST
UTILITY FOR THE RELATIONAL PROBLEMS, WHICH PROVED TO
BE CONSIDERABLY MORE DIFFICULT THAN CLASSIFICATION
PROBLEMS. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-645 435 5/8 5/10 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXTENSION OF HUMAN CAPABILITY THROUGH INFORMATION
PROCESSING AND DISPLAY SYSTEMS. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
DEC 66 14p NEWMAN, J. ROBERT ;
REPT. NO. SP-2560/000/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
DIVISION 14 SYMPOSIUM: CONSTRUCTS CONCERNING HUMAN
PERFORMANCE IN THE WORLD OF WORK II: PERSONNEL-
WORK EQUIPMENT INTERACTIONS, AMERICAN
PSYCHOLOGICAL ASSOCIATION CONVENTION, NEW YORK
CITY, SEPT 1966.

DESCRIPTORS: (*MAN-MACHINE SYSTEMS, PROBLEM
SOLVING), (*PROBLEM SOLVING, PERFORMANCE(HUMAN)),
(*COMPUTERS, PROBLEM SOLVING), INDUSTRIAL
PSYCHOLOGY, DISPLAY SYSTEMS, SYMPOSIA (U)

THE PAPER DISCUSSES SOME OF THE BASIC PRINCIPLES
AND TECHNIQUES OF MAN-MACHINE INTERACTION AND GIVES
SEVERAL ILLUSTRATIONS OF INSTANCES IN WHICH HUMAN
CAPABILITY HAS BEEN ENHANCED BY COMPUTER AND DISPLAY
SYSTEMS. IT ALSO DISCUSSES THE IMPLICATIONS OF
THESE PRINCIPLES FOR THE BUSINESS AND INDUSTRIAL
COMMUNITY. THE PAPER WAS ONE OF FOUR GIVEN AT A
SYMPOSIUM ON CONSTRUCTS CONCERNING HUMAN
PERFORMANCE IN THE WORLD OF WORK, HELD AT THE
AMERICAN PSYCHOLOGICAL ASSOCIATION
CONVENTION, NEW YORK CITY, SEPTEMBER 1966,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 740 5/10

ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
THE EFFECT OF COMPLEXITY OF NATURAL LANGUAGE
MEDIATORS AND THE ASSOCIABILITY OF PAIRS ON PAIRED-
ASSOCIATE LEARNING, (U)

JAN 67 19P WEARING, ALEXANDER J. ;

MONTAGUE, WILLIAM E. ;

REPT. NO. R-333

CONTRACT: DA-28-043-AMC-00073(E) , NONR-3985(08)

PROJ: DA-200014501B31F

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING, *WORD ASSOCIATION),
VERBAL BEHAVIOR, LANGUAGE, VOCABULARY, ERRORS,
RECALL, TEACHING MACHINES (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

NATURAL LANGUAGE MEDIATORS (NLM) ARE WIDELY USED
BY SS IN PAIRED-ASSOCIATE LEARNING. EXPERIMENTS
WHICH HAVE DOCUMENTED THEIR EFFECT ON LEARNING HAVE,
HOWEVER, LARGELY IGNORED QUALITATIVE DIFFERENCES
BETWEEN THEM. TWO LARGE GROUPS EACH LEARNED A
DIFFERENT CVC-WORD LIST AFTER WHICH THEY REPORTED
ANY NLMS THEY HAD USED. JUDGES RATED THE
COMPLEXITY OF NLMS USING A SCALE DEVELOPED BY
MARTIN, BOERSMA AND COX (1965) WITH
DIFFERENT MATERIALS, THE RESULTS AGREE WITH THEIRS
IN THAT COMPLEX NLMS PRODUCED FEWER ERRORS IN
LEARNING. HOWEVER, SOME CATEGORIES ON THE SCALE
WERE USED INFREQUENTLY WHICH MAY INDICATE THAT, AT
LEAST WITH HIGHLY MEANINGFUL MATERIAL, A SIMPLER
DICHOTOMOUS CATEGORIZATION (NLM OR ROTE) MAY BE
PREFERABLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-645 821 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
INVESTIGATION OF LEARNING PROCESSES IN A COGNITIVE
SYSTEM WITH ONE POSITIVE FEEDBACK. (U)
JUL 66 20P PARRA, I. K. :
REPT. NO. FTD-TT-65-1850
MONITOR: TT 67-60496

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. OF
AVTOMATYKA (USSR) V8 N5 P58-68 1963.

DESCRIPTORS: (LEARNING MACHINES, CHARACTER
RECOGNITION), RUSSIAN LANGUAGE, FEEDBACK, INPUT-
OUTPUT DEVICES, ARTIFICIAL INTELLIGENCE, USSR (U)

A DESCRIPTION OF A SELF-ORGANIZED SYSTEM WITH
POSITIVE FEEDBACK IS PRESENTED. RESULTS ARE GIVEN
OF INVESTIGATING CONTROL METHODS BY THE ORDER OF
SELF-TEACHING GROUPS IN THE 'ALFA' SYSTEM WITH ONE
POSITIVE FEEDBACK. METHODS OF LEARNING AND SELF-
TEACHING OF GROUPS OF ASSOCIATION CELLS OF THE SYSTEM
ARE DISCUSSED. IT IS SHOWN THAT FOR A SYSTEM WITH
ONE POSITIVE FEEDBACK, THE SELECTION OF SIGNS FOR
RECOGNITION OF THE GIVEN GROUP OF FORMS SHOULD BE
REALIZED NOT ONLY FOR USEFULNESS AND STABILITY, BUT
ALSO FOR THE SEQUENCE OF SIGNS OR FOR THE RESOLVING
POWER OF THE SYSTEM FOR EACH TWO FORMS. IN ORDER
THAT THE GROUP OF ASSOCIATION CELLS OF THE 'ALFA'
SYSTEM COULD RELEARN ON ANY OF THE GIVEN FORMS, IT IS
NECESSARY THAT THE MINIMUM RESOLVING POWER OF THE
SYSTEM BE NO LESS THAN UNITY AT ANY GIVEN INDICATOR
ADJUSTMENT OF MAXIMUM VOLTAGE (IBN). FURTHERMORE,
IT IS NECESSARY THAT THE RESOLVING POWER OF EACH TWO
FORMS DIFFER AT LEAST BY UNITY. THE NECESSARY
MINIMUM NUMBER OF SIGNS FOR THE POSSIBILITY OF
TEACHING AND RETEACHING IN THE SYSTEM IS DETERMINED
AND IT IS SHOWN THAT AN INCREASE IN THE NUMBER OF
POSITIVE FEEDBACKS IMPROVES THE SELFORGANIZING
PROCESS IN THE SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-645 996 9/2 6/4
STANFORD RESEARCH INST MENLO PARK CALIF
GRAPHICAL-DATA-PROCESSING RESEARCH STUDY AND
EXPERIMENTAL INVESTIGATION. (U)
DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 3, 1 AUG-31 OCT
66.
OCT 66 33P BRAIN, ALFRED E. ; HART, PETER
E. ; MUNSON, JOHN H. ;
CONTRACT: DA-28-043-AMC-01901(E)
PROJ: SR1-5864
MONITOR: ECOM 01901-25

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: CONTINUATION OF CONTRACT DA-36-
039-AMC-03247(E). SEE ALSO AD-641 647.

DESCRIPTORS: (*GRAPHICS, *DATA PROCESSING SYSTEMS),
(*CHARACTER RECOGNITION, GRAPHICS), (*LEARNING
MACHINES, CHARACTER RECOGNITION), PATTERN
RECOGNITION, FOURIER ANALYSIS, ANALOG-TO-DIGITAL
CONVERTERS, ADAPTIVE SYSTEMS (U)

THE RESULTS OF EXPERIMENTS ON PIECEWISE-LINEAR
LEARNING MACHINES WITH HANDPRINTED CHARACTERS ARE
REPORTED. THE DATA, AS BEFORE, CONSISTED OF THREE
46-CHARACTER FORTRAN ALPHABETS FROM EACH OF 16
WRITERS. THE RESULTS OF EXPERIMENT 3, A NINE-
VIEW EXPERIMENT, WERE COMPARED WITH SEVEN, FIVE,
THREE, AND ONE-VIEW RESULTS ON THE SAME TRAINING AND
TESTING SET. THE TEST ERROR RATE ON CHARACTERS NOT
INCLUDED IN THE TRAINING SET FELL STEADILY FROM 42
PERCENT WITH THE SINGLE VIEW TO 24 PERCENT WHEN THE
CATEGORY OF THE CHARACTER WAS DETERMINED FROM NINE
VIEWS. RESULTS ARE REPORTED ON THE PROGRAM, WHICH
INCLUDES BOTH PREPROCESSING AND CLASSIFICATION. IT
IS BASED ON CONTOUR FOLLOWING AND THE DETERMINATION
OF FEATURES INCLUDING CONNECTED SUBFIGURES, STROKES
CONCAVITIES, AND ENCLOSURES. THE PARTICULAR
PROBLEM TREATED IS THE SEPARATION OF '6S' FOR 'GS'.
A METHOD OF USING THE 1024-IMAGE OPTICAL
PREPROCESSOR FOR THE PREPROCESSING OF SPEECH
WAVEFORMS IS DESCRIBED AND SOME OF THE CONSIDERATIONS
THAT GOVERN ITS PRACTICAL IMPLEMENTATION ARE
DISCUSSED. THE METHOD IS BASED ON THE
DETERMINATION OF THE AMPLITUDE COEFFICIENTS OF A
FOURIER SERIES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 347 5/9 5/10
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
THE EFFECT OF PROGRAMED INSTRUCTION RESPONSE
CONDITIONS ON ACQUISITION AND RETENTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.:
DEC 66 41p MCCRYSTAL, THOMAS J. ;
JACOBS, T. O. ;
REPT. NO. HUMRRO-TR-66-20
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION, MILITARY
PERSONNEL), (MILITARY TRAINING, PROGRAMMED
INSTRUCTION), LEARNING, LEADERSHIP, INFANTRY,
REACTION (PSYCHOLOGY), ATTITUDES, TEACHING
MACHINES, PSYCHOMETRICS (U)

THE OBJECTIVE WAS TO EVALUATE THE EFFECT ON
CRITERION SCORES OF PROGRAMED INSTRUCTION REQUIRING
SUBJECTS EITHER TO WRITE OR NOT TO WRITE THEIR
RESPONSES, UNDER EITHER CONSTRUCTED OR PROMPTED
CONDITIONS, WITH MILITARY TACTICS AS THE CONTENT,
ONE HUNDRED AND TWENTY INFANTRY LIEUTENANTS IN
GROUPS OF 30 USED THE PROGRAMED BOOKLET INSTRUCTION
WITH THE FOUR RESPONSE CONDITIONS: CONSTRUCTED-
OVERT, CONSTRUCTED-COVERT, PROMPTED-OVERT, AND
PROMPTED-COVERT. TWO CONTROL GROUPS WERE ALSO
TESTED. ALTHOUGH TEST SCORES FROM CONVENTIONAL
LECTURE AND PROGRAMED INSTRUCTION METHODS DID NOT
DIFFER SIGNIFICANTLY. THE LECTURE METHOD REQUIRED
TWICE THE AVERAGE TRAINING TIME OF THE FASTEST
PROGRAMED METHOD. THE SIMILARITY IN EFFECTIVENESS
RESULTING FROM THE DISPARATE RESPONSE CONDITIONS
SUGGESTS THAT, FOR CONTENT OF THIS NATURE AND LENGTH,
CONSTRUCTED RESPONSES (EITHER OVERT OR COVERT)
MAY BE DISPENSED WITH IN FAVOR OF PROMPTED-COVERT
RESPONSES, WHICH REQUIRE LESS LEARNING TIME WITHOUT
COMPROMISING THE TRAINING EFFECTIVENESS OF PROGRAMED
INSTRUCTION. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 598 5/7
RAND CORP SANTA MONICA CALIF
STEPS TOWARD A MODEL OF LINGUISTIC PERFORMANCE: A
PRELIMINARY SKETCH, (U)
JAN 67 41P SCHWARCZ, R. M. I
REPT. NO. RM-5214-PR
CONTRACT: F44620-67-C-0045

UNCLASSIFIED REPORT

DESCRIPTORS: (LINGUISTICS, MODELS(SIMULATIONS)),
LANGUAGE, INFORMATION RETRIEVAL, DATA STORAGE
SYSTEMS, DATA PROCESSING SYSTEMS, LEARNING,
DIGITAL COMPUTERS, SYNTAX, SEMANTICS,
TRANSFORMATIONAL GRAMMARS, COMPUTER PROGRAMS,
BEHAVIOR, PERFORMANCE(HUMAN), COMPUTATIONAL
LINGUISTICS (U)

THE REPORT DISCUSSES THE TASK OF FORMULATING A
MODEL OF LINGUISTIC PERFORMANCE AND PROPOSES AN
APPROACH TOWARD THIS GOAL THAT IS ORIENTED TOWARD AN
EMBODIMENT OF THE MODEL AS A DIGITAL COMPUTER
PROGRAM. THE METHODOLOGY OF CURRENT LINGUISTIC
THEORY IS CRITICIZED FOR SEVERAL OF ITS FEATURES THAT
RENDER IT INAPPLICABLE TO A REALISTIC MODEL OF
PERFORMANCE, AND REMEDIES FOR THESE DEFICIENCIES ARE
PROPOSED. THE SYNTACTIC AND CONCEPTUAL DATA
STRUCTURES, INFERENCE RULES, GENERATION AND
UNDERSTANDING MECHANISMS, AND LEARNING MECHANISMS
PROPOSED FOR THE MODEL ARE ALL DESCRIBED. THE
LEARNING PROCESS IS FORMULATED AS A SERIES OF FIVE
STAGES, AND THE ROLES OF NONLINGUISTIC FEEDBACK AND
INDUCTIVE GENERALIZATION RELATIVE TO THESE STAGES ARE
DESCRIBED. FINALLY, THE IMPLICATIONS OF A
SUCCESSFUL PERFORMANCE MODEL FOR LINGUISTIC THEORY,
LINGUISTIC APPLICATIONS OF COMPUTERS, AND
PSYCHOLOGICAL THEORY ARE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-646 651 5/9

UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF
PSYCHOLOGY

TRAINING CORRECTIVE MAINTENANCE PERFORMANCE ON
ELECTRONIC EQUIPMENT WITH CAI TERMINALS: I, A
FEASIBILITY STUDY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

DEC 66 41p RIGNEY, JOSEPH W. I

REPT. NO. TR-51

CONTRACT: NONR-22A(22)

PROJ: NR-153-093

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION, ELECTRONIC
TECHNICIANS), FEASIBILITY STUDIES, PROGRAMMING
LANGUAGES, COMPUTERS, TESTS, LEARNING,
PERFORMANCE (HUMAN), ELECTRONIC EQUIPMENT (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

A REPORT IS GIVEN OF A FEASIBILITY STUDY IN WHICH
SEVERAL POSSIBLE RELATIONSHIPS BETWEEN STUDENT,
COMPUTER TERMINAL, AND ELECTRONIC EQUIPMENT WERE
CONSIDERED. THE SIMPLEST OF THESE CONFIGURATIONS
WAS SET UP AND EXAMINED IN TERMS OF ITS FEASIBILITY
FOR TEACHING THE PERFORMANCE OF FAULT LOCALIZATION ON
A NAVY TRANSCEIVER. AN INSTRUCTIONAL PROGRAM WAS
WRITTEN IN THE COURSEWRITER LANGUAGE. THE
PROGRAM GUIDES A STUDENT THROUGH A FAULT LOCALIZATION
STRATEGY DURING SEVERAL PRACTICE PROBLEMS, PROVIDING
KNOWLEDGE OF RESULTS AND REMEDIAL INSTRUCTION. IT
THEN RECORDS KEY STUDENT RESPONSES DURING THE
ADMINISTRATION OF TEST PROBLEMS. CONCLUSIONS OF THE
STUDY ARE: (1) SIMPLE CAI PROGRAMMING
LANGUAGES CAN BE QUICKLY LEARNED BY ELECTRONICS
INSTRUCTORS WHO ARE NOT TRAINED PROGRAMMERS; THESE
LANGUAGES MUST BE SUPPLEMENTED BY MORE POWERFUL
LANGUAGES IF THE FULL POTENTIAL OF CAI FOR
PERFORMANCE TRAINING IS TO BE REALIZED, (2)
COMPUTER-GUIDED PRACTICE IN FOLLOWING TROUBLE-
ISOLATION SEQUENCES CAN FACILITATE EFFECTIVE
TROUBLESHOOTING PERFORMANCE, EVEN A FEW HOURS OF
SUCH PRACTICE CAN SHOW INTERESTING RESULTS, (3)
THERE ARE SEVERAL ATTRACTIVE POSSIBILITIES FOR
COMBINING THE COMPUTER TERMINAL WITH ELECTRONIC
EQUIPMENT TO PROVIDE FOR ON-LINE SENSING OF STUDENT
ACTIONS ON THE EQUIPMENT. TWO MAJOR APPROACHES
EMERGE: CONSOLE-EQUIPMENT COMBINATIONS TO TEACH
PERFORMANCE ON SPECIFIC EQUIPMENT, AND CONSOLE-
EQUIPMENT COMBINATIONS TO TEACH GENERALIZABLE SKILLS,
SUCH AS ALIGNMENT PROCEDURES AND BRACKETING LOGIC. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-646 671 5/9 9/1
RCA SERVICE CO CAMDEN N J
DEVELOPMENT AND EXPERIMENTAL EVALUATION OF AN
AUTOMATED MULTI-MEDIA COURSE ON TRANSISTORS. (U)
DESCRIPTIVE NOTE: FINAL REPT., APR 65-JUN 66,
SEP 66 114P WHITTED, J. H.; WEAVER, EDWARD
E.; FOLEY, JOHN P. I
CONTRACT: AF 33(615)-2880
PROJ: AF-1710
TASK: 171007
MONITOR: AMRL TR-66-142

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*TRANSISTORS), TEACHING MACHINES, EDUCATION,
TRAINING DEVICES, SOLID STATE PHYSICS,
ELECTRONICS, AUTOMATION, TRANSISTOR AMPLIFIERS,
MATHEMATICAL ANALYSIS (U)

A COMPLETELY AUTOMATED MULTI-MEDIA SELF-STUDY
PROGRAM FOR TEACHING A PORTION OF ELECTRONIC SOLID-
STATE FUNDAMENTALS WAS DEVELOPED. THE SUBJECT
MATTER AREAS INCLUDED WERE FUNDAMENTAL THEORY OF
TRANSISTORS, TRANSISTOR AMPLIFIER FUNDAMENTALS, AND
SIMPLE MATHEMATICAL ANALYSIS OF TRANSISTORS INCLUDING
EQUIVALENT CIRCUITS, PARAMETERS, AND CHARACTERISTIC
CURVES. THE MEDIA INCLUDED A TAPE SLIDE AUDIO-
VISUAL PRESENTATIONS, A PROGRAMMED TEXT, A CUED TEXT,
A SOUND MOVIE, A WORKBOOK, AN A RCA TRANSISTOR
TRAINER. A CONTROLLED EXPERIMENT WAS CONDUCTED,
COMPARING THE EFFECTIVENESS OF THE SELF-SUFFICIENT
MULTI-MEDIA MATERIALS, WITH A CONVENTIONAL
INSTRUCTOR/CLASSROOM PRESENTATION AND EXISTING SELF-
STUDY MATERIALS FROM AIR FORCE EXTENSION
COURSE INSTITUTE, EVEN THOUGH THE INSTRUCTOR/
CLASSROOM SUBJECTS RECEIVED SOMEWHAT HIGHER RATIO
GAIN SCORES, ON THE AVERAGE, THAN THE MULTI-MEDIA
SUBJECTS, THIS DIFFERENCE WAS NOT SIGNIFICANT.
BOTH OF THESE MODES WERE SUPERIOR IN EFFECTIVENESS
TO THE EXTENSION COURSE MATERIALS. THE PRINCIPAL
MEASURES OF THIS EFFECTIVENESS WERE A PRE-TEST AND A
POST-TEST MADE UP OF MULTIPLE CHOICE ITEMS CONCERNING
THE SOLID STATE THEORY COVERED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-646 771 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
AUTOMATION OF A PORTION OF NCO LEADERSHIP PREPARATION
TRAINING. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 66 42P SHOWEL, MORRIS ; TAYLOR, ELAINE
HOOD, PAUL D. ;
REPT. NO. HUMRRO-TR-66-21
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A71201

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, LEADERSHIP),
(*ARMY PERSONNEL, LEADERSHIP), (*LEADERSHIP,
TRAINING), (*ARMY TRAINING, LEADERSHIP),
TEACHING METHODS, LEARNING, RETENTION,
AUTOMATION, PERFORMANCE (HUMAN), TRAINING
DEVICES (U)

A METHOD OF PRESENTING ROUGHLY ONE-SEVENTH OF THE
ARMY'S TWO-WEEK LEADER PREPARATION COURSE
(LPC) THROUGH AUTOMATED INSTRUCTION WAS DEVELOPED.
THE AUTOMATED INSTRUCTION METHOD INCLUDED THE USE
OF TAPE-RECORDED LECTURES, SUPPORTED BY VISUAL AID
FRAMES, AND PROGRAMED WORKBOOKS. AUTOMATED
PRESENTATION PROVED TO BE AT LEAST AS EFFECTIVE AS
CONVENTIONAL INSTRUCTION IN IMPARTING THE LEADERSHIP
KNOWLEDGE COVERED BY AUTOMATION. IN ADDITION,
THOSE STUDENTS WHO LEARNED THROUGH THE AUTOMATED
METHOD APPEARED TO RETAIN THEIR KNOWLEDGE BETTER THAN
THE CONVENTIONALLY TRAINED STUDENTS. THE AUTOMATED
METHOD ALSO EXHIBITED PRACTICALITY IN REDUCTION OF
INSTRUCTOR REQUIREMENTS, FLEXIBILITY OF SCHEDULING,
AND CONSISTENCY OF LEVEL OF PRESENTATION. THE
AUTOMATED PROGRAM WAS ADOPTED FOR USE AT ARMY
TRAINING CENTERS PRESENTING THE LPC.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOR

AD-647 273 5/9 5/10
ARIZONA STATE UNIV TEMPE
THE EFFECT OF INTRINSIC AND EXTRINSIC REINFORCEMENT
CONTINGENCIES ON LEARNER PERFORMANCE. (U)
DESCRIPTIVE NOTE: FINAL REPT., FEB 64-FEB 66.
SEP 66 14P SULLIVAN, HOWARD J.; BAKER,
ROBERT L.; SCHUTZ, RICHARD E.;
REPT. NO. 66-138
CONTRACT: AF 33(615)-1507
PROJ: AF-1710
TASK: 171007
MONITOR: AMRL TR-66-138

UNCLASSIFIED REPORT

DESCRIPTORS: (LEARNING, MOTIVATION),
PERFORMANCE (HUMAN), TEST
CONSTRUCTION (PSYCHOLOGY), TRAINING, PROGRAMMED
INSTRUCTION, TRAINING DEVICES, EFFECTIVENESS,
ANALYSIS OF VARIANCE, EDUCATION (U)
IDENTIFIERS: REINFORCEMENT (PSYCHOLOGY) (U)

SEVENTY-SIX AFROTC CADETS STUDIED A REVISED
VERSION OF THE TEXT, THE MILITARY JUSTICE
SYSTEM, FOR FOUR 50-MINUTE CLASS PERIODS
DISTRIBUTED OVER 2 WEEKS. UNIT-MASTERY TESTS OF
ABOUT 12 MULTIPLE-CHOICE ITEMS EACH WERE ADMINISTERED
AT 11 POINTS THROUGHOUT THE TEXT. HALF OF THE
SUBJECTS (CADETS) RECEIVED NO KNOWLEDGE OF THE
CORRECTNESS OF THEIR RESPONSES ON THE UNIT-MASTERY
TEST. THE OTHER HALF OF THE SUBJECTS USED
CHEMICALLY TREATED ANSWER SHEETS WHICH IMMEDIATELY
INDICATED WHETHER OR NOT THE SUBJECT'S ANSWER WAS
CORRECT. A 100-ITEM MULTIPLE-CHOICE TEST OVER THE
TEXT WAS ADMINISTERED TO ALL SUBJECTS 2 DAYS AFTER
THE FINAL INSTRUCTION PERIOD. ALL SUBJECTS HAD
BEEN INFORMED OF THE FINAL TEST. HALF OF THE
SUBJECTS IN EACH OF THE ABOVE GROUPS HAD BEEN ASSURED
PAYMENT OF \$2.50 FOR PARTICIPATION IN THE STUDY.
EACH STUDENT IN THE OTHER HALF HAD BEEN TOLD THAT
HE WOULD RECEIVE \$4.00 IF HE SCORED 808 OR HIGHER
ON THE FINAL TEST, \$2.00 IF HE SCORED FROM 80 TO
798 AND NOTHING IF HE SCORED BELOW 808.
COMPARED WITH OTHER SUBJECTS USING THE CHEMICALLY
TREATED ANSWER SHEETS COMPLETED THE STUDY OF THE TEXT
IN LESS TIME AND APPEARED TO DEPEND ON THE MASTERY
TEST FOR ADDITIONAL INSTRUCTION. THEY PERFORMED
SIGNIFICANTLY POORER ON THE UNIT-MASTERY TESTS.
ON THE FINAL CRITERION TEST, HOWEVER, NONE OF THE
GROUPS DIFFERED SIGNIFICANTLY.

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-647 407 3/9
RESEARCH ANALYSIS CORP MCLEAN VA
PROGRAMMED INSTRUCTION AND TEACHING MACHINES IN THE
FIELD OF MEDICAL EDUCATION: AN ANNOTATED
BIBLIOGRAPHY. (U)
DESCRIPTIVE NOTE: TECHNICAL PAPER,
NOV 66 20p REYNOLDS, LAURA A. I
REPT. NO. RAC-TP-235

UNCLASSIFIED REPORT

DESCRIPTORS: (•MEDICAL PERSONNEL, EDUCATION),
(•MEDICINE, •PROGRAMMED INSTRUCTION), TEACHING
MACHINES, TEACHING METHODS, ABSTRACTS,
BIBLIOGRAPHIES, COMPUTERS, LEARNING (U)

THE BIBLIOGRAPHY CONTAINS A SELECTED LIST OF
ARTICLES AND REPORTS, WITH ANNOTATIONS, REGARDING
PROGRAMMED INSTRUCTION AND TEACHING MACHINES IN THE
FIELD OF MEDICINE. AUTHORS' ABSTRACTS, WITH
OCCASIONAL MINOR CHANGES, ARE GIVEN WHERE AVAILABLE.
PAPERS THAT HAVE BEEN WRITTEN CONCERNING THE USE OF
COMPUTERS AS TEACHING MACHINES ARE INCLUDED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-647 460 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
PROGRAMMED LEARNING IN VIETNAMESE: CONSTRUCTION AND
EVALUATION OF A SHORT PRACTICAL LANGUAGE COURSE, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 67 51P FIKS, ALFRED I. IVAN BAN,
DINH I
REPT. NO. HUMRRO-YR-67-1
CONTRACT: DA-44-108-ARO-2
PROJ: DA-2J0247014712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION, MILITARY
PERSONNEL), (LEARNING, PROGRAMMED INSTRUCTION),
LANGUAGE, VIETNAM, TEACHING METHODS, MILITARY
TRAINING, ATTITUDES, MOTIVATION (U)

LANGUAGE SKILL IS AN ESPECIALLY IMPORTANT ELEMENT
IN THE PERFORMANCE OF OVERSEAS MILITARY OPERATIONS
THAT ARE PRIMARILY ADVISORY IN NATURE. THIS
RESEARCH PROJECT SOUGHT TO DEVELOP AND ASSESS THE
VALUE OF A SHORT, SELF-INSTRUCTIONAL, JOB-ORIENTED
VIETNAMESE LANGUAGE PROGRAM. A FIFTY-LESSON
TAPED COURSE WAS CONSTRUCTED. THE PROGRAM WAS
EVALUATED ON MILITARY ASSISTANCE TRAINING
ADVISOR STUDENTS. LEARNING ACHIEVEMENT WAS
SATISFACTORY, AND TRAINEES IN GENERAL REPORTED LIKING
THE COURSE. LANGUAGE APTITUDE WAS RELATED TO
PERFORMANCE IN THE COURSE, WHICH WAS IN TURN RELATED
TO PERFORMANCE IN SUBSEQUENT MORE ADVANCED LANGUAGE
TRAINING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 505 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
FOREIGN LANGUAGE PROGRAMMED MATERIALS: 1966, (U)
67 11P FIKS, ALFRED I. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-1-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN MODERN LANGUAGE
JOURNAL V51 N1 P7-14 JAN 1967.

DESCRIPTORS: (LANGUAGE, PROGRAMMED INSTRUCTION),
LEARNING, MOTIVATION, EFFECTIVENESS (U)

THE ESSENCE OF THE NEW EDUCATIONAL TECHNOLOGY IS
THAT: (1) COURSE OBJECTIVES ARE SPECIFIED IN
ADVANCE, IN DETAIL, AND IN BEHAVIORAL TERMS; (2)
THE MATERIAL IS PRESENTED AS A GRADUATED SEQUENCE OF
SMALL ITEMS (CALLED FRAMES) LEADING TO THE
DESIRED TERMINAL BEHAVIOR; (3) THE INDIVIDUAL
STUDENT ACTIVELY RESPONDS AT HIS OWN PACE TO EACH
FRAME (WITH LOW PROBABILITY OF ERROR); (4)
THE STUDENT RECEIVES IMMEDIATE REINFORCEMENT AFTER
EACH RESPONSE (PRINCIPALLY BY FINDING OUT WHETHER
HIS PREVIOUS RESPONSE WAS CORRECT). THIS
ARTICLE'S MAIN INTENT IS TO LIST AVAILABLE PROGRAMMED
MATERIALS ALONG WITH CERTAIN ITEMS OF INFORMATION
ABOUT EACH. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0MK08

AD-647 519 5/9 5/10
INSTITUTE FOR BEHAVIORAL RESEARCH INC SILVER SPRING MD
THE PSYCHOBIOLOGICAL INVESTIGATION OF THE DEVELOPMENT
OF NEW VERBAL BEHAVIOR. PART I. AN EXPERIMENT IN
TEACHING A SECOND LANGUAGE; PART II. THE EFFECTS OF
LISTENING DISCRIMINATION TRAINING UPON ECHOIC
ACCURACY; PART III. SOME EFFECTS OF VARIOUS
REINFORCEMENT CONTINGENCIES ON PERFORMANCES DURING A
COURSE IN PROGRAMMED VIETNAMESE. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT., 1 MAR 60-1
MAR 66.
JUL 66 91P FERSTER, C. B. ; ROCHA E
SILVA, M. I. ; SHERMAN, JAMES ;
CONTRACT: DA-49-193-MD-2577

UNCLASSIFIED REPORT

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION),
LEARNING, VERBAL BEHAVIOR, PHONETICS,
MOTIVATION, TEACHING METHODS,
PERFORMANCE(HUMAN), TEACHING MACHINES,
HEARING, READING, EFFECTIVENESS (U)
IDENTIFIERS: REINFORCEMENT(PSYCHOLOGY) (U)

EXPERIMENTS WERE CARRIED OUT WITH VERBAL BEHAVIOR
WHICH ARE EXTENSIONS AND ADAPTATIONS OF GENERAL
LABORATORY PRINCIPLES DEVELOPED WITH ANIMALS. THE
EXPERIMENTS HAVE BEEN IN THREE AREAS. THE FIRST
WAS AN APPLICATION OF GENERAL PRINCIPLES OF VERBAL
BEHAVIOR, LARGELY BASED ON SKINNER'S ANALYSIS OF
VERBAL BEHAVIOR, TO THE PROBLEMS OF TEACHING A SECOND
LANGUAGE. ACTUAL TEACHING PROGRAMS WERE DEVELOPED
IN GERMAN AND VIETNAMESE. THE SECOND AREA OF
RESEARCH WAS A PROGRAM OF EXPERIMENTS DESIGNED TO
TEST THE HYPOTHESIS THAT TRAINING AS A LISTENER AND A
READER WOULD ENHANCE THE DEVELOPMENT OF SPEAKING AND
WRITING. THE EXPERIMENTS WERE CARRIED OUT, USING A
SINGLE VIETNAMESE PHONEME, TO TRACE THE INFLUENCE
ON PRONUNCIATION OF THE SUBJECT'S SKILL AS A
LISTENER. A THIRD CLASS OF EXPERIMENTS CONCERNED
MOTIVATIONAL VARIABLES. THE AUTOMATIC PROGRAMMING
OF THE TEACHING MACHINE MATERIALS MADE IT POSSIBLE TO
MANIPULATE MANY OF THE RELEVANT REINFORCERS. THE
EXPERIMENTS DEALT PARTICULARLY WITH THE ASPECT OF THE
TEACHING MACHINE PERFORMANCES THAT WAS REINFORCED.
IN SOME EXPERIMENTS REINFORCEMENT OCCURRED AT THE
END OF THE SESSION WHEN THE STUDENT DEMONSTRATED THE
NEW PERFORMANCE IN THE SECOND LANGUAGE. IN OTHER
EXPERIMENTS THE REINFORCEMENT OCCURRED CARD BY CARD
AS THE STUDENT WENT THROUGH THE PROGRAM.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0MK08

AD-647 667 5/9 9/2 5/10
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF NAVY
TRAINING RESEARCH LAB
TRAINING IN COMPUTER FLOW CHARTING USING PROGRAMMED
INSTRUCTION: ELIMINATING THE EFFECTS OF MATHEMATICS
APTITUDE UPON ACHIEVEMENT. (U)
NOV 66 32P FORD, JOHN D. , JR.; MEYER,
JOHN K. ;
PROJ: PFO17032003
MONITOR: NPRA-STB 67-10

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION, LEARNING),
(FLOW CHARTING, TRAINING), NAVAL PERSONNEL,
TEACHING METHODS, MATHEMATICS, APTITUDE TESTS,
ACHIEVEMENT TESTS, PERFORMANCE (HUMAN),
COMPUTER PROGRAMS, ANALYSIS OF VARIANCE (U)

THREE STUDIES HAVE BEEN CONDUCTED TO DISCOVER
INSTRUCTIONAL METHODS WHICH WOULD ASSIST THOSE WHO
HAVE DIFFICULTY IN LEARNING TO FLOW CHART FOR
COMPUTER PROGRAMMING PURPOSES. IN ALL OF THESE
STUDIES MATHEMATICS APTITUDE WAS FOUND TO BE A
POWERFUL FACTOR IN INFLUENCING ACHIEVEMENT. DURING
THESE THREE STUDIES AN INSTRUCTIONAL PROGRAM HAD BEEN
CONSTRUCTED AND SUCCESSIVELY MODIFIED WITHOUT
CHANGING THE RELATIONSHIP BETWEEN MATHEMATICS
APTITUDE AND LEARNING. SUBSTANTIAL REVISIONS IN
THE INSTRUCTIONAL PROGRAM WERE MADE FOR THE PRESENT
STUDY. THESE WERE ESSENTIALLY THE PROVISION OF A
STRATEGY TO GET THE STUDENTS STARTED AND A MEANS OF
LEARNING THE SUBORDINATE SKILLS NEEDED FOR SUCCESS IN
COMPUTER FLOW CHARTING. THIS PROGRAM PRODUCED A
HIGHER DEGREE OF LEARNING AND VIRTUALLY ELIMINATED
THE DIFFERENCES BETWEEN COLLEGE STUDENTS OF HIGHER
AND LOWER MATHEMATICS APTITUDE. THE LEARNING
PROGRAM CAN BE ADAPTED TO TEACHING COMPUTER FLOW
CHARTING TO THOSE WHO ARE NOW FAILING TO MEET NAVY
PROGRAMMING STANDARDS. THERE IS A COST, HOWEVER,
IT TOOK THE LOW MATHEMATICS STUDENTS MORE THAN 50
PER CENT LONGER (13 COMPARED TO 8 HOURS) TO
COMPLETE THE LEARNING PROGRAM. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-647 839 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
LANGUAGE PROGRAMING FOR THE FOREIGN STUDENT, (U)
FEB 67 9P ROCKLYN, EUGENE H, ;
REPT. NO. HUMRO PROFESSIONAL PAPER-5-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT CONVENTION OF THE
SPEECH ASSOCIATION OF AMERICA, NEW YORK CITY,
DEC 1961.

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION),
ENGLISH LANGUAGE, RUSSIAN LANGUAGE, LEARNING,
MOTIVATION, AUTOMATION (U)

IT IS BELIEVED THAT BY EXTENDING THE SCOPE OF
CONTENT AND MAKING ENGLISH THE TARGET LANGUAGE, IT
MIGHT BE POSSIBLE TO CONSTRUCT AUTOMATED COURSES FOR
TEACHING THE SPEAKING AND UNDERSTANDING SKILLS OF THE
ENGLISH LANGUAGE TO STUDENTS OF VARIED NATIVE
TONGUES. SUCH COURSES WOULD BE VALUABLE TO THE
MILITARY AND USEFUL TO ACADEMIC AND COMMERCIAL
INSTITUTIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 840 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
MILITARY APPLICATIONS OF PROGRAMED INSTRUCTION AND
MANAGEMENT CONSIDERATIONS IN PROGRAMED INSTRUCTION, (U)
FEB 67 17p SMITH, ROBERT G., JR;
REPT. NO. HUMRRO PROFESSIONAL PAPER-7-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON
THE MILITARY APPLICATIONS OF PROGRAMMED
INSTRUCTION, NAPLES, ITALY, APRIL 1965.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *MILITARY
TRAINING), EFFECTIVENESS, TRAINING DEVICES,
MILITARY PERSONNEL, LEARNING, COSTS (U)

THE PURPOSE OF THIS PRESENTATION IS TWOFOLD:
(1) TO INDICATE THE INFLUENCE OF MILITARY
APPLICATIONS OF PROGRAMED INSTRUCTION ON THE
DEVELOPMENT OF MODERN CONCEPTS OF PROGRAMING;
(2) TO DESCRIBE SOME SPECIFIC APPLICATIONS THAT
MIGHT SUGGEST WAYS IN WHICH PROGRAMED INSTRUCTION CAN
BE USED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-647 841 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
THE APPLICATION OF PROGRAMED INSTRUCTION TO FOREIGN
LANGUAGE AND LITERACY TRAINING, (U)
FEB 67 13P ROCKLYN, EUGENE H. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-8-67
CONTRACT: DA-44-188-ARO-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON THE
MILITARY APPLICATIONS OF PROGRAMMED INSTRUCTION,
NAPLES, ITALY, APRIL 1965.

DESCRIPTORS: (*LANGUAGE, *PROGRAMMED INSTRUCTION),
EDUCATION, TRAINING DEVICES, LEARNING,
EFFECTIVENESS, MILITARY TRAINING, TEACHING
METHODS (U)

A DESCRIPTION IS GIVEN OF SOME SELF-INSTRUCTIONAL
FOREIGN LANGUAGE TRAINING PROGRAMS DEVELOPED FOR
MILITARY USAGE. EXAMPLES ARE GIVEN SHOWING HOW
PROGRAMED INSTRUCTION TECHNIQUES WERE APPLIED TO THE
PEDAGOGICAL AND LINGUISTIC PRINCIPLES UNDERLYING
FOREIGN LANGUAGE INSTRUCTION IN THESE PROGRAMS. A
BRIEF OVERVIEW OF SELF-INSTRUCTIONAL FOREIGN LANGUAGE
TRAINING AND SOME OF THE PROGRAMED LANGUAGE MATERIALS
AVAILABLE GIVE AN INDICATION OF THE EXTENT TO WHICH
PROGRAMED INSTRUCTION HAS BEEN AND IS BEING APPLIED
TO FOREIGN LANGUAGE TRAINING IN THE UNITED
STATES. THE MAJOR PROBLEM IN APPLYING PROGRAMED
INSTRUCTION TECHNIQUES TO LITERACY TRAINING IS ALSO
BRIEFLY DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-648 267 9/2 6/4
GRAFIX INC ALBUQUERQUE N MEX
COMPUTER PROCEDURES AND PROGRAMS FOR THE AUTOMATION
OF CONATIVE PROCESSES. (U)
DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
DEC 66 136p BUSSEY, GENE R. I
CONTRACT: AF 49(638)-1476
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-0703

UNCLASSIFIED REPORT

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *COMPUTER
PROGRAMS), AUTOMATION, PROGRAMMING (COMPUTERS),
BEHAVIOR, SUBROUTINES, LINGUISTICS, LEARNING
MACHINES (U)
IDENTIFIERS: PUPIL PROGRAM (U)

PUPIL II, A GENERAL ADAPTIVE MOTOR LEARNING PROGRAM
FOR AN IBM 360/40F COMPUTER, IS DESCRIBED AND
LISTED. THE PROGRAM IS WRITTEN IN BPS FORTRAN
IV AND IS A SUCCESSOR TO AN EARLIER OPERATIVE
PROGRAM, PUPIL I. NEW AND PLANNED ADDITIONS TO
THE PROGRAM ARE DISCUSSED AND DESCRIBED, MAINLY THOSE
WHICH PERMIT A SUB-GOAL OR GOAL SETTING MODE OF
OPERATION, LINGUISTIC LEVEL BEHAVIORAL CONTROL, AND
VERBAL SKILLS. VARIOUS PSYCHOLOGICAL AND
EXPERIMENTAL TOPICS BEARING ON THE PROGRAM ARE
DISCUSSED AND ANALYZED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-648 534 9/2 6/4
GRAFIX INC ALBUQUERQUE N MEX
COMPUTER EXPERIMENTS IN MOTOR LEARNING. (U)
DESCRIPTIVE NOTE: INTERIM REPT.,
66 25P BUSSEY, GENE R. ;
CONTRACT: AF 49(638)-1476, AF 49(638)-1203
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-0702

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROCEEDINGS OF FALL
JOINT COMPUTER CONFERENCE, LAS VEGAS, NEVADA
V29 PT1 P753-74 1965.
SUPPLEMENTARY NOTE: SEE ALSO AD-648 267.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *COMPUTER
PROGRAMS), CYBERNETICS, CONTROL SEQUENCES,
LEARNING MACHINES, EXPERIMENTAL DATA, SUBROUTINES,
PROGRAMMING(COMPUTERS) (U)
IDENTIFIERS: PUPIL PROGRAM, TUTOR PROGRAM (U)

THE PAPER DESCRIBES A METHOD OF ACHIEVING MOTOR
LEARNING IN A COMPUTER ENVIRONMENT, TWO
INTERACTIVE COMPUTER PROGRAMS ARE PRESENTED AND
DESCRIBED. PUPIL IS A CODED-INPUT/CODED-OUTPUT
GENERAL LEARNING PROGRAM WHICH INTERACTS WITH
TUTOR, AN ENVIRONMENT SIMULATING PROGRAM, TEST
RESULTS OF EXPERIMENTS INVOLVING ELEMENTARY SPOTIAL
ORIENTATION, LOCOMOTION, ACCOMMODATION AND
MANIPULATION ARE DISCUSSED. THE PRIMARY RESULTS
PRESENTED IN THIS REPORT CONCERN AN OBJECTIVE MEASURE
OF PERFORMANCE, KNOWN AS EFFECTIVE RELATIVE
INTELLIGENCE, WHICH WAS USED TO EVALUATE SIX
ELEMENTARY CREATIVE MEANS OF RESPONSE GENERATION,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-648 745 5/2 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
SDC RESEARCH AND TECHNOLOGY DIVISION EXTERNAL
PUBLICATIONS 1961-1966. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
MAR 67 29p BEAM, C. WILHELM, L. D. I
REPT. NO. TM-698/066/00

UNCLASSIFIED REPORT

DESCRIPTORS: (DOCUMENTATION, REPORTS),
(REPORTS, CLASSIFICATION), PROGRAMMING
LANGUAGES, ARTIFICIAL INTELLIGENCE, DATA PROCESSING
SYSTEMS, INFORMATION RETRIEVAL, MATHEMATICS,
OPERATIONS RESEARCH, EDUCATION, BIBLIOGRAPHIES (U)

THIS DOCUMENT PRESENTS A COMPLETE LISTING OF
EXTERNAL PUBLICATIONS BY SDC'S RESEARCH AND
TECHNOLOGY DIVISION STAFF MEMBERS AND
CONSULTANTS. THE PRESENT ISSUE LISTS JOURNAL
PUBLICATIONS, PAPERS IN CONFERENCE PROCEEDINGS,
BOOKS, AND BOOK CHAPTERS FOR THE YEARS 1961-1966
INCLUSIVE, GROUPED IN GENERAL ACCORDING TO AREA OF
RESEARCH. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-649 335 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION, A SURVEY OF THE
LITERATURE, SECOND EDITION, (U)
JAN 67 78P HICKEY, ALBERT E. ; NEWTON,
JOHN M. ;
CONTRACT: NONR-4757(00)
PROJ: NR-154-254

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), TRAINING DEVICES, EDUCATION,
INFORMATION RETRIEVAL, LIBRARIES, SPECIAL PURPOSE
COMPUTERS, TIME SHARING, SYSTEMS ENGINEERING,
ARTIFICIAL INTELLIGENCE, LANGUAGE, LEARNING,
ADAPTIVE SYSTEMS, BIBLIOGRAPHIES, REVIEWS (U)

A SELECTIVE REVIEW OF 242 DOCUMENTS RELATED TO
COMPUTER-ASSISTED INSTRUCTION (CAI), PRINCIPAL
HEADINGS: CAI REVIEWS AND BIBLIOGRAPHIES,
APPLICATIONS OF CAI, MAJOR CAI CENTERS,
CAI SYSTEMS STUDIES, CAI LANGUAGES,
INSTRUCTIONAL THEORY, AND PROGRAM PREPARATION
AND EVALUATION, AN APPENDIX LISTS 140 CAI
PROGRAMS, THE REVIEW WILL BE UPDATED SEMIANNUALLY,
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-651 052 5/9

GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE

PROGRAMMED LEARNING: PROLOGUE TO INSTRUCTION; (U)

JAN 66 13p SEIDEL, ROBERT J. ;

REPT. NO. HUMRRO PROFESSIONAL PAPER-17-67

CONTRACT: DA-44-188-AR0-2

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PSYCHOLOGICAL REPORTS

V20 N1 P307-16 FEB 1967.

DESCRIPTORS: (+PROGRAMMED INSTRUCTION, +LEARNING),
REVIEWS, COMPUTERS, PSYCHOLOGY, PROBLEM
SOLVING (U)

THE PAPER INDICATES SOME PERTINENT ISSUES IN THE
FIELD OF PROGRAMMED INSTRUCTION (PI) AND SUGGESTS
PROMISING DIRECTIONS FOR FUTURE GROWTH OF PI, BOTH
AS A MEDIUM FOR THE APPLICATION OF PRINCIPLES OF
LEARNING AND AS A MEANS OF FURTHERING OUR
UNDERSTANDING OF LEARNING PROCESSES. PRACTICAL AND
THEORETICAL IMPLICATIONS ARE TOUCHED UPON AND
COMBINED TO GIVE A POSITION STATEMENT ON PI AS A
PEDAGOGICAL AND PSYCHOLOGICAL RESEARCH TOOL. IN
THIS VEIN THE UTILITY AND INEVITABILITY OF COMPUTER-
AIDED INSTRUCTION ARE DISCUSSED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0MK08

AD-653 128- 5/9

GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE

AN ANNOTATED BIBLIOGRAPHY ON THE DESIGN OF
INSTRUCTIONAL SYSTEMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

MAY 67 140P SMITH, ROBERT G. , JR;

REPT. NO. HUMRRO-TR-67-5

CONTRACT: DA-44-188-ARO-2

PROJ: CA-2J024701A71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-644 054.

DESCRIPTORS: (1) TEACHING METHODS, BIBLIOGRAPHIES),
STUDENTS, LEARNING, PERFORMANCE (HUMAN),
PROGRAMMED INSTRUCTION, SYSTEMS ENGINEERING,
TRAINING, TRAINING DEVICES, INDEXES (U)

THE BIBLIOGRAPHY IS DIVIDED INTO SEVEN MAJOR AREAS,
EACH DEALING WITH A DIFFERENT ASPECT OF INSTRUCTIONAL
SYSTEM DESIGN: (1) SYSTEMS--GENERAL; (2)
TRAINING SYSTEMS; (3) PRESENTATION OF
KNOWLEDGE; (4) PRACTICE OF KNOWLEDGE;
(5) PRACTICE OF PERFORMANCE; (6)
MANAGEMENT OF STUDENTS; AND (7) ADDITIONAL
MATERIAL. THE MAJOR AREAS ARE FURTHER DIVIDED
INTO SUBTOPICS WHERE APPROPRIATE. THERE ARE 449
ANNOTATED ENTRIES IN THE BIBLIOGRAPHY. DATING FROM
1950 TO 1965. KEY-WORD-IN-CONTEXT (KWIC) AND
AUTHOR INDEXES ARE INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-653 238 9/2 5/10
BATTELLE MEMORIAL INST COLUMBUS OHIO
DESIGN PRINCIPLES FOR LEARNING SYSTEMS, (U)
65 16P TOU, J. T. :

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROCEEDINGS OF IFAC
TOKYO SYMPOSIUM ON SYSTEMS ENGINEERING FOR CONTROL
SYSTEM DESIGN P171-85 1965.

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED IN PART BY
ONR.

DESCRIPTORS: (*LEARNING, HUMANS), (*LEARNING
MACHINES, SYSTEMS ENGINEERING), DESIGN, CONTROL
SYSTEMS, INFORMATION RETRIEVAL, DATA STORAGE
SYSTEMS, DIGITAL COMPUTERS, DECISION MAKING,
COMPUTER LOGIC, DECISION THEORY,
PROGRAMMING (COMPUTERS), SWITCHING CIRCUITS,
AUTOMATION, ARTIFICIAL INTELLIGENCE (U)

THE PAPER REVIEWS THE MAJOR ASPECTS OF HUMAN
LEARNING, AND DISCUSSES SEVERAL LEARNING MECHANISMS
AND SOME OF THE DESIGN PRINCIPLES FOR LEARNING
SYSTEMS. A COMPARISON IS MADE BETWEEN HUMAN
LEARNING AND MACHINE LEARNING. SOME ASPECTS OF
HUMAN LEARNING ARE CONSIDERED IN THE DESIGN OF
LEARNING SYSTEM. FOR THE PURPOSE OF ENGINEERING
DESIGN, LEARNING IS REFERRED TO AS THE ACQUISITION OF
SKILL TO PERFORM MEANINGFUL SELF-MODIFICATION AND TO
IMPROVE PERFORMANCE ON THE BASIS OF PAST EXPERIENCE.
THE THREE BASIC LEARNING MECHANISMS ARE LEARNING BY
ROTE (ZERO-TH-ORDER LEARNING), LEARNING BY
SELECTIVE REINFORCEMENT (FIRST-ORDER LEARNING),
AND LEARNING BY GENERALIZATION (SECOND-ORDER
LEARNING). THE STORAGE AND RETRIEVAL OF PAST
DATA AND INFORMATION PATTERN IN A DIGITAL COMPUTER,
THE REWARD AND PUNISHMENT SCHEME, AND THE STATISTICAL
INFERENCE AND BAYESIAN DECISION PROCESS ARE
CONSIDERED AS THE ENGINEERING COUNTERPARTS OF THESE
LEARNING MECHANISMS. THE FOUNDATIONS FOR THE
DESIGN OF LEARNING SYSTEMS ARE THRESHOLD LOGIC,
SWITCHING THEORY, DECISION THEORY, BAYESIAN
STATISTICS, STOCHASTIC AUTOMATA, AND HEURISTIC
PROGRAMMING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK00

AD-654 621 5/9

SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
AN INSTRUCTIONAL MANAGEMENT SYSTEM FOR THE PUBLIC
SCHOOLS.

(U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,

JUN 67 20P COULSON, JOHN E. :

REPT. NO. TM-3298/002/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE ABINGTON
CONFERENCE '67 ON NEW DIRECTIONS IN INDIVIDUALIZING
INSTRUCTION, WILLOW GROVE, PA., APRIL 23-25, 1967.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*TEACHING
METHODS, COMPUTERS), STUDENTS, MANAGEMENT
ENGINEERING, INSTRUCTORS, DATA PROCESSING SYSTEMS,
PROGRAMMED INSTRUCTION

(U)

AN INSTRUCTIONAL MANAGEMENT SYSTEM IS
DESCRIBED AS AN INTERIM APPROACH TOWARD WIDESPREAD
ADOPTION OF COMPUTER-BASED INSTRUCTION. AN
EXPERIMENTAL PROTOTYPE OF THE INSTRUCTIONAL
MANAGEMENT SYSTEM IS BEING DEVELOPED BY SYSTEM
DEVELOPMENT CORPORATION UNDER A CONTRACT FROM THE
SOUTHWEST REGIONAL LABORATORY FOR EDUCATIONAL
RESEARCH AND DEVELOPMENT. IT IS A COMPUTER-
BASED INFORMATION SYSTEM DESIGNED TO AID SCHOOL
PERSONNEL IN THE INDIVIDUAL MONITORING AND MANAGEMENT
OF STUDENT PROGRESS. INPUTS TO THE INSTRUCTIONAL
MANAGEMENT SYSTEM INCLUDE THE RESULT OF
DIAGNOSTIC TESTS, AND INFORMATION ABOUT THE PUPILS
AND THE INSTRUCTIONAL RESOURCE MATERIALS. MACHINE-
PREPARED OUTPUTS SHOW INDIVIDUAL AND GROUP
PERFORMANCE ON THE DIAGNOSTIC TESTS, AND SUGGEST
ALTERNATIVE INSTRUCTIONAL MATERIALS OR TEACHING
TECHNIQUES THAT THE TEACHER MIGHT USE FOR PUPILS WITH
SPECIFIC WEAKNESSES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-656 613 5/9 4/1
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
COMPUTER-ADMINISTERED INSTRUCTION VERSUS
TRADITIONALLY ADMINISTERED INSTRUCTION: ECONOMICS, (U)
JUN 67 43P KOPSTEIN, FELIX F. ; SEIDEL,
ROBERT J. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-31-67
CONTRACT: DA-44-188-AR0-2
PROJ: DA-2-J-024701-A-712
TASK: 2-J-024701-A-71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE NATIONAL SOCIETY
FOR PROGRAMMED INSTRUCTION, BOSTON, MASS., APRIL
1967.

DESCRIPTORS: (TEACHING METHODS, COST
EFFECTIVENESS); COMPUTERS, INSTRUCTORS,
PROGRAMMED INSTRUCTION, ECONOMICS, EDUCATION,
MILITARY TRAINING, PROGRAMMING (COMPUTERS) (U)

AN ATTEMPT IS MADE TO ASSAY THE ECONOMICS OF
COMPUTER-ADMINISTERED INSTRUCTION (CAI) VERSUS
TRADITIONALLY ADMINISTERED INSTRUCTION (TAI) IN
CONTROLLING THE STRUCTURE OF THE LEARNER'S STIMULUS
ENVIRONMENT IN TEACHING AND TRAINING SITUATIONS.
THERE IS A DISCUSSION OF THE NEED FOR A SOUND,
OBJECTIVE ECONOMIC APPRAISAL OF THE VALUE TO SOCIETY
AS A WHOLE OF INCREMENTS IN THE BREADTH AND DEPTH OF
EDUCATION IN THE POPULATION, AND OF THE INFLUENCE OF
VARYING RATES WITH WHICH THESE INCREMENTS ARE BROUGHT
ABOUT. THE NECESSITY FOR RELIABLE, OBJECTIVE
INFORMATION CONCERNING COST DATA IS EMPHASIZED.
PROJECTED COST/EFFECTIVENESS COMPARISONS BASED ON
THE ASSUMPTION OF EQUAL EFFECTIVENESS FOR CAI AND
TAI ARE DISCUSSED FOR BOTH CIVILIAN AND MILITARY
INSTRUCTION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 190 5/9 12/2
STANFORD UNIV CALIF INST IN ENGINEERING-ECONOMIC
SYSTEMS
QUANTITATIVE METHODS IN COMPUTER-DIRECTED TEACHING
SYSTEMS. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
MAR 67 171P SMALLWOOD, RICHARD D. ;
WEINSTEIN, IRAM J. ; ECKLES, JAMES E. ;
CONTRACT: NONR-225(84)

UNCLASSIFIED REPORT

DESCRIPTORS: (*EDUCATION, SYSTEMS ENGINEERING),
(*TEACHING METHODS, SYSTEMS ENGINEERING),
PROGRAMMED INSTRUCTION, MATHEMATICAL MODELS,
LEARNING, DECISION MAKING, DYNAMIC PROGRAMMING,
DECISION THEORY, OPTIMIZATION, TIME SHARING,
COMPUTERS, OPERATIONS RESEARCH (U)

THE REPORT FORMULATES IN QUANTITATIVE TERMS THE
DECISION PROBLEM ASSOCIATED WITH THE DESIGN OF A
COMPUTER-DIRECTED TEACHING SYSTEM. THIS
FORMULATION IS THEN USED TO DIRECT A THEORETICAL
INQUIRY INTO SOME OF THE ASPECTS OF THIS PROBLEM THAT
ARE RELEVANT TO THE DESIGN OF A QUANTITATIVE DECISION
PROCESS WITHIN A PRACTICAL TEACHING SYSTEM. SOME
OF THE PROBLEMS ATTACKED INCLUDE: THE DEVELOPMENT
OF A CLASS OF MODELS FOR CONCEPTUAL LEARNING, THE
STUDY OF A DECISION THEORETIC PROCEDURE FOR THE
SELECTION OF THE MODEL FROM A CLASS OF MODELS, THE
INVESTIGATION OF OPTIMUM TEACHING STRATEGIES (IN AN
ECONOMIC SENSE) FOR A SIMPLE LEARNING MODEL, THE
DERIVATION OF THE OPTIMUM QUANTIZATION OF A PAST
HISTORY PARAMETER FOR A SIMPLE TEACHING SYSTEM, A
CONSIDERATION OF THE INFORMATION-REWARD TRADE OFF IN
COMPUTER-DIRECTED TEACHING SYSTEMS, AND A PRELIMINARY
FORMULATION OF THE OPTIMUM DESIGN PROBLEM FOR A TIME-
SHARED TEACHING SYSTEM. THE REPORT CONCLUDES WITH
A DISCUSSION OF DIRECTIONS FOR FUTURE RESEARCH.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 216 5/9 5/2
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB
TEACHING THE USE OF THE LIBRARY TO UNDERGRADUATES;
AN EXPERIMENTAL COMPARISON OF COMPUTER-BASED
INSTRUCTION AND THE CONVENTIONAL LECTURE METHOD, (U)
AUG 67 208P AXEEN, MARINA E. I
REPT. NO. R-361
CONTRACT: DA-28-043-AMC-00073(E), NONR-3985(08)
PROJ: DA-20014501A31F

UNCLASSIFIED REPORT

DESCRIPTORS: (*TEACHING METHODS, *LIBRARIES),
(*PROGRAMMED INSTRUCTION, LIBRARIES),
EFFECTIVENESS, COMPUTER PROGRAMS, INDEXES,
TRAINING DEVICES, STUDENTS, LEARNING,
PERFORMANCE(HUMAN), TEACHING MACHINES (U)
IDENTIFIERS: PLATO TEACHING SYSTEM (U)

THE OVERALL OBJECTIVES OF THE PRESENT STUDY WERE
(1) TO PROVIDE SPECIFIC INFORMATION CONCERNING
THE EFFECTIVENESS OF COMPUTER-BASED INSTRUCTION IN
TEACHING THE USE OF THE LIBRARY; (2) TO COMPARE
THE EFFECTIVENESS OF AN AUTOMATED PROGRAMED
INSTRUCTION WITH THE CONVENTIONAL LECTURE METHOD AS
THESE RELATE TO THE KNOWLEDGE STUDENTS OBTAINED;
(3) TO COMPARE THE AMOUNT OF INSTRUCTOR'S TIME
NECESSARY TO PREPARE AND TEACH BY COMPUTER-BASED
INSTRUCTION WITH THE TIME SPENT IN PREPARATION AND
DELIVERY OF LECTURES IN THE CLASSROOM; (4) TO
COMPARE THE AMOUNT OF TIME IT TOOK TO COVER THE
CONTENT OF THE COURSE, SPECIFICALLY THE WRITER
TESTED THE FOLLOWING HYPOTHESIS: UNDERGRADUATE
STUDENTS TAUGHT HOW TO USE AN ACADEMIC LIBRARY BY
PROGRAMED INSTRUCTION WOULD LEARN AS MUCH, IN LESS
TIME WITH LESS INSTRUCTIONAL ASSISTANCE, THAN WOULD
UNDERGRADUATES TAUGHT BY THE CONVENTIONAL LECTURE
METHOD. THIS PAPER PRESENTS A DETAILED DESCRIPTION
OF THE STUDY, AND A DISCUSSION OF THE RESULTS OF THE
STUDY IN THE LIGHT OF THE OBJECTIVES OUTLINED ABOVE.
THIS PAPER ALSO INCLUDES A GENERAL OUTLINE OF THE
PLATO TEACHING SYSTEM. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-657 347 9/2 5/2 5/7 6/4
BATTELLE MEMORIAL INST COLUMBUS OHIO COLUMBUS LABS
COMPUTER AND INFORMATION SCIENCES-II, (U)
67 382P TOU, JULIUS T. 1

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM ACADEMIC
PRESS, INC., 111 FIFTH AVENUE, NEW YORK, N.
Y., \$16.00.

SUPPLEMENTARY NOTE: PROCEEDINGS OF THE SYMPOSIUM ON
COMPUTER AND INFORMATION SCIENCES (2ND), HELD AT
BATTELLE MEMORIAL INSTITUTE, AUGUST 22-24,
1966.

DESCRIPTORS: (*COMPUTERS, SYMPOSIA), STOCHASTIC
PROCESSES, OPTIMIZATION, LEARNING MACHINES,
ADAPTIVE SYSTEMS, MATHEMATICAL MODELS, PATTERN
RECOGNITION, DECISION THEORY, AUTOMATA, CONTROL
SYSTEMS, DATA STORAGE SYSTEMS, INDEXES, MAN-
MACHINE SYSTEMS, SYNTAX, ALGORITHMS (U)
IDENTIFIERS: ON-LINE SYSTEMS, INFORMATION
SCIENCES (U)

CONTENTS: INTERACTIVE INFORMATION PROCESSING;
OPTIMIZATION, ADAPTATION, AND LEARNING IN AUTOMATIC
SYSTEMS; RECENT WORK ON THEORETICAL MODELS OF
BIOLOGICAL MEMORY; SOME APPROACHES TO OPTIMUM
FEATURE EXTRACTION; EVALUATION AND SELECTION OF
VARIABLES IN PATTERN RECOGNITION; SOME TOPICS ON
NONSUPERVISED ADAPTIVE DETECTION FOR MULTIVARIATE
NORMAL DISTRIBUTIONS; NONLINEAR ENVIRONMENTS
PERMITTING EFFICIENT ADAPTATION; RECOGNITION OF
ORDER AND EVOLUTIONARY SYSTEMS; STOCHASTIC AUTOMATA
AS MODELS OF LEARNING SYSTEMS; ADAPTIVE SYSTEMS
WITH A VARIABLE STRUCTURE; FUNDAMENTAL PRINCIPLE
AND BEHAVIOR OF LEARNINGS; PRELIMINARY DESIGN OF
AN INTELLIGENT ROBOT; ITERATIVE STORAGE OF
MULTIDIMENSIONAL FUNCTIONS IN DISCRETE DISTRIBUTED
MEMORIES; A COMMAND LANGUAGE FOR VISUALIZATION OF
ARTICULATED MOVEMENTS; SOME APPROACHES TO AUTOMATIC
INDEXING; THE NATURE OF SYNTACTIC REDUNDANCY; ON
COMMUNICATING WITH MACHINES IN NATURAL LANGUAGE; A
GENERALIZATION OF THE LINEAR THRESHOLD DECISION
ALGORITHM TO MULTIPLE CLASSES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 348 5/9 9/2
GENERAL LEARNING CORP WASHINGTON D C
A PLAN FOR THE ESTABLISHMENT OF A COMPUTER-AIDED
INSTRUCTION RESEARCH AND DEVELOPMENT CENTER. (U)
DESCRIPTIVE NOTE: FINAL REPT. 17 OCT 66-16 JUL 67,
JUL 67 200P TORR, DONALD V. MOLELLO.
SAM :PREVEL, JAMES J. I
CONTRACT: N00014-67-C-0219
PROJ: R4303

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), FEASIBILITY STUDIES, COMPUTER
PERSONNEL, LEARNING, PERFORMANCE (HUMAN),
COSTS, TIME SHARING, INPUT-OUTPUT DEVICES,
PERSONNEL MANAGEMENT (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION, COMPUTER
SOFTWARE, COMPUTER HARDWARE (U)

THE REPORT PRESENTS A PLAN FOR THE ESTABLISHMENT OF
A COMPUTER-AIDED RESEARCH AND DEVELOPMENT
CENTER. THE PLAN IDENTIFIES COMPUTER SYSTEMS,
PERSONNEL, AND FACILITY REQUIREMENTS. A FIVE-YEAR
IMPLEMENTATION SCHEDULE AND A FIVE-YEAR COST ESTIMATE
ARE PROVIDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-657 759 9/2 9/4 6/4
TEXAS UNIV AUSTIN LABS FOR ELECTRONICS AND RELATED
SCIENCE RESEARCH
UNSUPERVISED LEARNING, MINIMUM RISK ADAPTIVE PATTERN
CLASSIFICATION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 67 63P HILBORN, CHARLES G. , JR.;
LAINIOTIS, DEMETRIOS G. ;
REPT. NO. TR-37
CONTRACT: AF-AFOSR-766-66, AF-AFOSR-766-67
PROJ: AF-4751
MONITOR: AFOSR 67-1889

UNCLASSIFIED REPORT

DESCRIPTORS: (*PATTERN RECOGNITION, ADAPTIVE
SYSTEMS), (*LEARNING MACHINES, ADAPTIVE
SYSTEMS), (*DECISION THEORY, STATISTICAL
PROCESSES), (*INFORMATION THEORY, MATHEMATICAL
MODELS), RANDOM VARIABLES, OPTIMIZATION,
STABILITY, LEARNING (U)
IDENTIFIERS: SEQUENTIAL PATTERN RECOGNITION (U)

A RECURSIVE BAYES OPTIMAL SOLUTION IS FOUND FOR
THE PROBLEM OF SEQUENTIAL, MULTICATEGORY PATTERN
RECOGNITION, WHEN UNSUPERVISED LEARNING IS REQUIRED.
THE PARAMETRIC MODEL USED FOR THIS INVESTIGATION
ALLOWS FOR (I) BOTH CONSTANT AND TIME-VARYING
UNKNOWN PARAMETER VECTORS, (II) PARTIALLY UNKNOWN
PROBABILITY LAWS OF THE HYPOTHESES AND TIME-VARYING
PARAMETERS, (III) DEPENDENCE OF OBSERVATIONS OF
FINITE PAST AS WELL AS PRESENT HYPOTHESES AND
PARAMETERS, AND, MOST SIGNIFICANTLY, (IV)
PARAMETER-CONDITIONAL DEPENDENCE OF BOTH OBSERVATIONS
AND THE INFORMATION SOURCE UP TO ANY FINITE MARKOV
ORDERS. FOR FINITE OR QUANTIZED PARAMETER SPACES
THE OPTIMAL (MINIMUM RISK) LEARNING SYSTEM IS
FOUND AND SHOWN TO BE REALIZABLE IN RECURSIVE FORM
WITH FINITE MEMORY REQUIREMENTS. BY A MATRIX
FORMULATION, THE SYSTEM IS REPRESENTED AS A
COMBINATION OF DELAY-FEEDBACK DYNAMIC SYSTEMS. THE
ASYMPTOTIC PROPERTIES OF THE OPTIMAL SOLUTION ARE
STUDIED, AND IT IS SHOWN THAT AS A RESULT OF THE
MARTINGALE NATURE OF THE LEARNING SEQUENCES, THE
OPTIMAL SYSTEM IS ASYMPTOTICALLY STABLE AND
CONVERGENT. AS AN ILLUSTRATION OF THE
APPLICABILITY OF THE RESULTS, THE GENERAL FORMULATION
IS SHOWN TO BE DIRECTLY APPLICABLE TO THE
CONSTRUCTION OF OPTIMUM UNSUPERVISED LEARNING M-ARY
COMMUNICATION RECEIVERS IN THE PRESENCE OF SUCH
PROBLEMS AS LACK OF SYMBOL SYNCHRONIZATION, (U)

UNCLASSIFIED

DUC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70HK08

AD-657 794 5/2 5/9

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH ARLINGTON VA
DIRECTORATE OF INFORMATION SCIENCES
MOVE THE INFORMATION. A KIND OF MISSIONARY SPIRIT.

(U)

JUN 67 203P SWANSON, ROWENA W. ;
MONITOR: AFOSR 67-1247

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED FOR PRESENTATION AT THE
ANNUAL MEETING OF THE AMERICAN SOCIETY FOR
ENGINEERING EDUCATION (75TH) MICHIGAN STATE
UNIV., EAST LANSING, 19-22 JUN 67.

DESCRIPTORS: (•DOCUMENTATION, •EDUCATION),
TECHNICAL INFORMATION CENTERS, PROGRAMMED
INSTRUCTION, LIBRARIES, COMPUTERS, DATA PROCESSING
SYSTEMS, MANAGEMENT PLANNING, COMPUTER PERSONNEL (U)

THE PAPER RECORDS (A) PLANS AND ACTIVITIES IN
THE DEVELOPMENT AND IMPLEMENTATION OF INFORMATION
SYSTEMS IN A VARIETY OF LIBRARY AND INFORMATION
CENTER ENVIRONMENTS AND (B) PLANS AND PROGRAMS
FOR THE EDUCATION AND TRAINING OF PEOPLE FOR THE
INFORMATION, COMPUTER, AND LIBRARY SCIENCES. THE
SECTION ON SYSTEMS CONSIDERS, IN TURN, THE ACADEMIC
LIBRARY, THE PUBLIC LIBRARY, THE INDUSTRY-ORIENTED
LIBRARY, AND MANAGEMENT APPLICATIONS. THE
DISCUSSION OF ACCOMPLISHMENTS FOR THESE ENVIRONMENTS
HIGHLIGHTS NOT ONLY MECHANIZATION OF OPERATIONS, BUT
ALSO USER NEEDS AND HOW THEY ARE BEING MET. THE
DISCUSSION INCLUDES, FOR EXAMPLE, SUMMARY ANALYSES OF
DEFENSE DOCUMENTATION CENTER OPERATIONS.
CALIFORNIA'S DEPARTMENT OF MOTOR VEHICLES
AUTOMATED SYSTEM, AND SEVERAL SURVEYS OF USER HABITS
AND PRACTICES IN ACQUIRING INFORMATION AND
INFORMATION SERVICES. CURRICULUM DEVELOPMENT IN
THE COMPUTER SCIENCES IS CONSIDERED WITH RESPECT TO
(A) FACTORS ARISING FROM ITS MULTIDISCIPLINARY
CHARACTER AND ITS VOCATION-TYPE ASPECTS, AND (B)
ITS POTENTIAL IMPACT. VIA COMPUTER-ASSISTED
INSTRUCTION, ON TEACHING METHODS AND FUNDAMENTAL
QUESTIONS CONCERNING EDUCATION PER SE, STEPS
TOWARD CURRICULUM REFORM IN THE LIBRARY SCIENCES ARE
REVIEWED. A BIBLIOGRAPHY IS INCLUDED THAT LISTS
REFERENCES PRIMARILY TO THE 1966-1967 LITERATURE ON
MECHANIZATION OF LIBRARY OPERATIONS, EDUCATION FOR
LIBRARIANSHIP, SYSTEMS IMPLEMENTATIONS, AND WORK IN
PROGRAMMED INSTRUCTION AND COMPUTER-ASSISTED
INSTRUCTION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 20MK00

AD-657 806 5/9 9/2 6/4
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
CYBERNETICS AND EDUCATION,
AUG 67 17P PASK, GORDON ;
CONTRACT: F61052-67-C-0010
PROJ: AF-9769
TASK: 976904
MONITOR: AFOSR 67-2001

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE CONGRESS OF THE
INTERNATIONAL ASSOCIATION OF CYBERNETICS (ISTH),
NAMUR (BELGIUM), SEP 67.

DESCRIPTORS: (+CYBERNETICS, TEACHING METHODS),
(+TEACHING MACHINES, COMPUTERS), LEARNING,
ADAPTIVE SYSTEMS, PSYCHOLOGY, EDUCATION, INPUT-
OUTPUT DEVICES, PERFORMANCE (HUMAN), CONTROL
SYSTEMS

(U)

IDENTIFIERS: COMPUTER-AIDED INSTRUCTION

(U)

THIS PAPER REVIEWS THE MAIN CONTRIBUTION OF
CYBERNETICS TO THE ART AND SCIENCE OF TEACHING. IT
REVIEWS THE BEARING OF CYBERNETIC PRINCIPLES ON
TEACHING METHODS, AND CONSIDERS TEACHING AS THE
CONTROL OF LEARNING. IT DESCRIBES THE DIFFERENCE
BETWEEN SEQUENTIAL AND SKILL TEACHING MACHINES AND
THE VALUE OF COMPUTER ASSISTANCE IN TEACHING
MACHINES, ADAPTIVE MACHINES AND ADAPTIVE
METASYSTEMS ARE BRIEFLY DISCUSSED. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-657 812 5/8 9/2 5/11 5/2
RAND CORP SANTA MONICA CALIF
THE COMPUTER--HERO OR VILLAIN, (U)
AUG 67 17P GREENBERGER, MARTIN ;
REPT. NO. P-3656

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN JOHNS HOPKINS
MAGAZINE, FALL 1967.

DESCRIPTORS: (*MAN-MACHINE SYSTEMS, ATTITUDES),
(*EDUCATION, COMPUTERS), (*INFORMATION
RETRIEVAL, COMPUTERS), (*COMPUTERS,
ATTITUDES), DECISION MAKING, AUTOMATION,
PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION, ON-LINE
SYSTEMS (U)

IT IS HUMAN TO BE FEARFUL AND DISTRUSTFUL OF A
STRANGER. THE COMPUTER, LESS THAN TWENTY YEARS
SINCE ITS APPEARANCE UPON THE COMMERCIAL SCENE, IS
STILL A RELATIVE STRANGER TO OUR TIMES. STRANGERS
TEND TO LOOK GRAY TO US (AT BEST) AND OUR
INCLINATION IS TO WANT TO MAKE THEM BLACK OR WHITE.
PEOPLE LOOK FOR SCAPEGOATS. AND THE AWESOME
COMPUTER IS A CONVENIENT ONE. WHAT IS SAD IS THAT
IT HAS BECOME A SCAPEGOAT IN CERTAIN SEGMENTS OF THE
SCHOLARLY COMMUNITY, INCLUDING PEOPLE WITH THE
ABILITY TO APPLY THE COMPUTER TO HUMANITARIAN ENDS.
THE COMPUTER'S POTENTIAL FOR GOOD IS VAST, BUT IT
IS LIKE AN EMPTY TABLET THAT MUST BE FILLED IN BY MAN
TO BE MADE USEFUL AND MEANINGFUL. TO FILL IT IN
WELL REQUIRES UNDERSTANDING, AND THE BIAS THAT
UNDERLIES SCAPEGOATING IS THE ENEMY OF UNDERSTANDING.
IN THE LAST ANALYSIS, THE QUESTION WITH WHICH WE
STARTED (THE COMPUTER--HERO OR VILLAIN) IS A
QUESTION ABOUT MEN, NOT MACHINES. WE CAN LOOK TO
OURSELVES IN ANSWERING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-658 476 5/11 9/2 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
APPLICATIONS OF COMPUTERS IN EDUCATION. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPER,
AUG 67 18P SILBERMAN, HARRY F. ;
REPT. NO. SP-2909/000/01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AMERICAN
MANAGEMENT ASSOCIATION CONFERENCE, AMERICANA
HOTEL, NEW YORK, AUGUST 9, 1967.

DESCRIPTORS: (*EDUCATION, COMPUTERS), (*TIME
SHARING, *MAN-MACHINE SYSTEMS),
PROGRAMMING(COMPUTERS), DIGITAL COMPUTERS,
COMPUTER PROGRAMS, PERFORMANCE(HUMAN), INPUT-
OUTPUT DEVICES, COST EFFECTIVENESS (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

FOUR AREAS OF COMPUTER APPLICATIONS TO EDUCATION
ARE DESCRIBED: (1) THE COMPUTER AS A SUBJECT OF
INSTRUCTION; (2) AS A TOOL OF INSTRUCTION;
(3) AS A RESEARCH AND DEVELOPMENT TOOL; AND
(4) AS A MANAGEMENT TOOL. THESE APPLICATIONS
ARE VIEWED IN THE CONTEXT OF AN OPERATIONAL TIME-
SHARING SYSTEM CONNECTING MANY SCHOOLS WITH A CENTRAL
COMPUTER. THREE PROBLEM AREAS IN IMPLEMENTING SUCH
A SYSTEM ARE DISCUSSED: (1) MAN-MACHINE
COMMUNICATION; (2) COST-EFFECTIVENESS; AND (3)
USER ACCEPTANCE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 817 5/9

NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL
WASHINGTON D C COMMITTEE ON MILITARY PSYCHOLOGY
EDUCATIONAL AND TRAINING MEDIA: A SYMPOSIUM, (U)
AUG 59 210P FINCH, GLEN I
MONITOR: NAS-NRC PUB-789

UNCLASSIFIED REPORT

AVAILABILITY: HARD COPY AVAILABLE FROM NATIONAL
ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL,
WASHINGTON, D. C.. \$2.00.

DESCRIPTORS: (•EDUCATION, SYMPOSIA), (•TRAINING,
SYMPOSIA), INSTRUCTORS, TEXTBOOKS, TEACHING
METHODS, GRAPHICS, TRAINING FILMS, TELEVISION
COMMUNICATION SYSTEMS, TEACHING MACHINES, TRAINING
DEVICES (U)

CONTENTS: THE ROLE OF MEDIA IN EDUCATION AND
TRAINING; THE INSTRUCTOR; TEXTBOOKS AND
METHODOLOGY; THE JOB AS A MEDIUM FOR TRAINING;
GRAPHIC AIDS, MODELS AND MOCKUPS; THE
INSTRUCTIONAL FILM; TEACHING BY TELEVISION; PART
TRAINERS; TEACHING MACHINES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 869 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
COMPUTER-ASSISTED INSTRUCTION (CAI). (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 67 86P STOLUROW, LAWRENCE M. ;
REPT. NO. TR-2
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), PROBLEM SOLVING, TEACHING METHODS,
THEORY, MULTIPLE OPERATION, STUDENTS,
EDUCATION (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

THE PURPOSES OF CAI ARE DESCRIBED. FIVE MODES
OF USE ARE DESCRIBED: PROBLEM SOLVING; DRILL AND
PRACTICE; SIMULATION AND GAMING; TUTORIAL
INSTRUCTION; AND AUTHOR. THE MULTI-MEDIA CHARACTER
OF CAI IS DESCRIBED. A MODEL OF CAI IS
DEVELOPED; IT IS THE IDIOGRAPHIC CONTINGENCY MODEL
(ICM). THE MODEL TREATS INSTRUCTION AS A
MULTIPLE DECISION PROCESS. THE FIRST IS THE
PRETUTORIAL; THE SECOND IS THE TUTORIAL PROCESS; THE
THIRD PROCESS IS CONCERNED WITH MAINTAINING OR
CHANGING THE TEACHING PROGRAM BY ALTERING THE
TEACHING STRATEGY (LOGIC). IMPLICATIONS FOR
CURRICULUM PLANNING, MAN-MACHINE RELATIONS, OPERATION
AND ASSESSMENT AND EVALUATION ARE DISCUSSED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-658 873 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
THE HARVARD UNIVERSITY COMPUTER-ASSISTED INSTRUCTION
LABORATORY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 67 24p STOLUROW, LAWRENCE M. ;
REPT. NO. TR-1
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
COMPUTERS), TIME SHARING, EDUCATION, PROBLEM
SOLVING, LABORATORIES, COMPUTER PERSONNEL,
FEASIBILITY STUDIES, MANAGEMENT PLANNING (U)
IDENTIFIERS: COMPUTER-AIDED INSTRUCTION (U)

THE REPORT DESCRIBES THE PURPOSE, ORGANIZATION AND
PLAN OF THE HARVARD CAI LABORATORY.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-659 987 5/9 9/2
NAVAL WEAPONS LAB DAHLGREN VA
COMPUTER ASSISTED INSTRUCTION: A SELECTED
BIBLIOGRAPHY AND KWIC INDEX,
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 67 144P ENGEL, GERALD L. ;
REPT. NO. NWL-TM-K-49/67

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-645 654.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
BIBLIOGRAPHIES), COMPUTERS, TEACHING MACHINES,
COMPUTER PROGRAMS, INDEXES, EDUCATION
IDENTIFIERS: KWIC INDEX, COMPUTER-AIDED
INSTRUCTION

(U)

(U)

THE TECHNICAL MEMORANDUM SUPERSEDES AD-645 654.
ALL ENTRIES FOUND IN AD-645 654 ARE IN THIS
MEMORANDUM TOGETHER WITH REFERENCES TO ONE HUNDRED
FIFTY ADDITIONAL ARTICLES AND REPORTS. THIS
TECHNICAL MEMORANDUM PROVIDES AN ANNOTATED
BIBLIOGRAPHY, REFERENCED BY A KEY WORD IN
CONTEXT (KWIC) INDEX TO SELECTED ARTICLES ON
COMPUTER ASSISTED INSTRUCTION (CAI).
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO, /OHK08

AD-660 740 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
DEVELOPMENT OF A SHORT, PRACTICAL, PROGRAMED
VIETNAMESE COURSE, (U)
SEP 67 12P FIKS, ALFRED I, I
REPT. NO. HUMRRO PROFESSIONAL PAPER-41-67
CONTRACT: DA-44-188-ARO-2
PROJ: DA2J024701A712
TASK: 2J024701A71201

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *LANGUAGE),
VIETNAM, MILITARY TRAINING, LEARNING, TEACHING
METHODS, EFFECTIVENESS (U)

THE PRESENTATION REPORTS THE GOALS, APPROACH, AND
RESULTS OF DEVELOPING A VIETNAMESE LANGUAGE COURSE
THAT COULD BE TAUGHT WITHOUT THE PRESENCE OF AN
INSTRUCTOR. THE 50-LESSON COURSE THAT WAS
DEVELOPED WAS GIVEN TO 19 MILITARY ASSISTANCE
TRAINING ADVISOR STUDENTS, ALL OFFICERS AT THE
SPECIAL WARFARE CENTER. THESE STUDENTS DID
AS WELL AS OR BETTER THAN A TRADITIONALLY TRAINED
GROUP WHEN BOTH WERE TESTED ON THE ARMY LANGUAGE
PROFICIENCY TEST. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-661 276 5/10 5/9
WASHINGTON UNIV ST LOUIS MO DEPT OF PSYCHOLOGY
A LEARNING TEST APPROACH TO PREDICTING CLASSROOM
PERFORMANCE. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 67 48P WARDROP, JAMES L. ;
REPT. NO. TR-13
CONTRACT: NONR-816(14)

UNCLASSIFIED REPORT

DESCRIPTORS: (LEARNING, PSYCHOMETRICS),
PERFORMANCE(HUMAN), PROGRAMMED INSTRUCTION,
INTELLIGENCE TESTS, ACHIEVEMENT TESTS, APTITUDE
TESTS, EDUCATION, PREDICTIONS, VERBAL BEHAVIOR (U)

MINIATURE LEARNING SITUATIONS CAN BE USED TO
PREDICT CLASSROOM PERFORMANCE. WHEN A SINGLE
PROGRAM IS USED TO OBTAIN A MEASURE OF LEARNING
ABILITY, THE COMBINATION OF THE RESULTING GAIN
MEASURE OF LEARNING ABILITY WITH A MEASURE OF VERBAL
INTELLIGENCE LEADS TO AN APPRECIABLY HIGHER VALIDITY
THAN CAN BE OBTAINED WHEN EITHER MEASURE IS USED
SINGLY. SINCE PROGRAMMED INSTRUCTION PROVIDES AN
EFFECTIVE MINIATURE LEARNING SITUATION, SUGGESTIONS
ARE MADE FOR FURTHER RESEARCH DEALING WITH THE
POSSIBILITY OF USING OTHER COMPLEX LEARNING TASKS AS
MINIATURE LEARNING SITUATIONS AND WITH THE
RELATIONSHIPS AMONG THE VARIOUS GAIN MEASURES OF
LEARNING WHICH WOULD BE DEVELOPED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-661 671 5/9 5/8 9/2 5/10
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
LEVIATHAN TEACHING MACHINE: SIXTH BRIEFING. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO.,
JUN 67 42p ROME, BEATRICE K. ROME,
SYDNEY C. I
REPT. NO. TM-1923/006/00

UNCLASSIFIED REPORT

DESCRIPTORS: (TEACHING MACHINES, DESIGN),
SOCIAL COMMUNICATION, SIMULATION, MAN-MACHINE
SYSTEMS, COMPUTER PROGRAMS, ORGANIZATIONS, DISPLAY
SYSTEMS, CONTROL (U)
IDENTIFIERS: LEVIATHAN (U)

THE TEACHING MACHINE IS USED, AS PART OF THE
EXPERIMENTAL DESIGN, TO INDOCTRINATE SUBJECTS FOR
LEVIATHAN EXPERIMENTS. IT IS THE SIXTH IN A
SERIES OF BRIEFINGS--THE OTHER FIVE, AS WELL AS A SET
OF CHARTS, HAVE BEEN PUBLISHED AS: TM-1923/001/00
- AD-446807, TM-1923/002/00 - AD-446810, TM-
1923/003/00 - AD-443758, TM-1923/004/00 - AD-
446797, TM-1923/005/00 - AD-446812. THE
TEACHING MACHINE IS OPERATED THROUGH A COMPUTER IN
CONJUNCTION WITH DISPLAY AND PUSHBUTTON EQUIPMENT
REGULARLY USED IN LEVIATHAN EXPERIMENTS. AT EACH
BRIEFING, THE FIRST DISPLAY, WHICH PRESENTS THE TITLE
AND CONTENTS OF THE BRIEFING, IS CONTROLLED BY THE
EXPERIMENTERS. THEREAFTER, EACH SUBJECT CONTROLS
THE SEQUENCE AND TIMING AND HIS SUCCESSIVE
INSTRUCTIONAL DISPLAYS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-663 702 9/4 12/2
TEXAS UNIV AUSTIN COMMUNICATION SYSTEMS RESEARCH
GROUP
LEARNING SYSTEMS FOR MINIMUM RISK ADAPTIVE PATTERN
CLASSIFICATION AND OPTIMAL ADAPTIVE ESTIMATION. (U)
DESCRIPTIVE NOTE: PART 1 OF FINAL REPT.,
NOV 67 119P HILBORN, CHARLES G. ;
LAINIOTIS, DEMETRIOS G. ;
REPT. NO. CSRG-TR-9
CONTRACT: N00123-67-C-0383, NGR-44-012-066

UNCLASSIFIED REPORT

DESCRIPTORS: (*INFORMATION THEORY, ADAPTIVE
COMMUNICATION SYSTEMS), PATTERN RECOGNITION,
ADAPTIVE SYSTEMS, CLASSIFICATION, DIGITAL SYSTEMS,
LEARNING MACHINES, OPTIMIZATION, PROBABILITY,
OPERATIONS RESEARCH (U)
IDENTIFIERS: DIGITAL COMMUNICATION SYSTEMS (U)

THE TWO PROBLEMS OF UNSUPERVISED LEARNING,
SEQUENTIAL MULTI-CATEGORY PATTERN CLASSIFICATION AND
ADAPTIVE ESTIMATION OF A SAMPLED STOCHASTIC PROCESS
ARE JOINTLY INVESTIGATED. AN UNKNOWN PARAMETER
MODEL IS DEVELOPED WHICH, FOR THE PATTERN
CLASSIFICATION PROBLEM, ALLOWS FOR (I) BOTH
CONSTANT AND TIME-VARYING UNKNOWN PARAMETERS,
(II) PARTIALLY UNKNOWN PROBABILITY LAWS OF THE
HYPOTHESES AND TIME-VARYING PARAMETER SEQUENCES,
(III) DEPENDENCE OF THE OBSERVATIONS ON PAST AS
WELL AS PRESENT HYPOTHESES AND PARAMETERS, AND MOST
SIGNIFICANTLY (IV) SEQUENTIAL DEPENDENCIES IN THE
OBSERVATIONS ARISING FROM EITHER (OR BOTH)
DEPENDENCY IN THE PATTERN OR INFORMATION SOURCE
(CONTEXT INDEPENDENCE) OR IN THE OBSERVATION
MEDIUM (MEASUREMENT CORRELATION), THESE
DEPENDENCIES BEING UP TO ANY FINITE MARKOV ORDERS.
FOR THE ADAPTIVE ESTIMATION PROBLEM THE SAME MODEL
IS EMPLOYED WITHOUT ANY DISTINCTION BETWEEN
'HYPOTHESES' AND 'TIME-VARYING PARAMETERS.' FOR
FINITE PARAMETER SPACES, THE SOLUTIONS WHICH ARE
BAYES OPTIMAL (MINIMUM RISK) AT EACH STEP ARE
FOUND FOR BOTH PROBLEMS AND SHOWN TO BE REALIZABLE IN
RECURSIVE FORM WITH FIXED MEMORY REQUIREMENTS. THE
RECURSIVE 'LEARNING' PORTION OF THE SOLUTIONS IS THE
SAME FOR BOTH PROBLEMS. THE ASYMPTOTIC PROPERTIES
OF THE OPTIMAL SYSTEMS ARE STUDIED AND CONDITIONS
ESTABLISHED FOR THESE SYSTEMS (IN ADDITION TO
MAKING BEST USE OF AVAILABLE DATA AT EACH STEP) TO
CONVERGE IN PERFORMANCE TO SYSTEMS OPERATING WITH
KNOWLEDGE OF THE (UNOBSERVABLE) CONSTANT UNKNOWN. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-664 235 5/9

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
PROGRAMMED INSTRUCTION FOR SELECTED CIC WATCH OFFICER
TASKS: I. AN EXPERIMENTAL EVALUATION OF THE AUDIO
NOTEBOOK IN THE TEACHING OF RADIOTELEPHONE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,

NOV 67 20 CURRAN, THOMAS E. ; BROCK,

JOHN F. I

REPT. NO. NPRA-SNR-68-11

PROJ: PF0170301F01

UNCLASSIFIED REPORT

DESCRIPTORS: (PROGRAMMED INSTRUCTION, RECORDING
SYSTEMS), (NAVAL TRAINING, COMBAT INFORMATION
CENTERS), RADIOTELEPHONES, OFFICER PERSONNEL,
LEARNING, TEACHING METHODS, SHIPBORNE,
EFFECTIVENESS, INSTRUCTION MANUALS (U)

THE RESEARCH EVALUATES ORAL PROGRAM INSTRUCTION
USED WITH A MULTITAPE RECORDER, THE AUDIO
NOTEBOOK, AS A MEANS OF PROMOTING ADAPTATION TO
STUDENT DIFFERENCES AND FLEXIBILITY IN INSTRUCTIONAL
SCHEDULING. RADIOTELEPHONE PROCEDURES REQUIRED BY
THE CIC WATCH OFFICER POSITION WERE PROGRAMMED FOR
THE AUDIO NOTEBOOK IN TERMS OF THE SAME LEARNING
OBJECTIVES AS CURRENTLY STATED FOR FAANTRACENS
COURSE FOR THE WATCH OFFICER. THE ORAL LEARNING
PROGRAM TOOK LESS TIME, MUCH LESS FOR THOSE WITH
NAVY EXPERIENCE, AND ACHIEVED THE OBJECTIVES BETTER
THAN THE CLASSROOM DRILL METHOD. THE AUDIO
NOTEBOOK PROVED RESISTANT TO DOWN-TIME. THIS
MAKES IT POTENTIALLY USEFUL FOR SHIPBOARD TRAINING.
THE LEARNING PROGRAM DEVELOPED CAN BE USED IN ANY
SCHOOL OR SHIPBOARD SITUATION WHERE THE LEARNING
OBJECTIVES CORRESPOND TO THOSE OF THE WATCH OFFICER
COURSE IN WHICH IT WAS EVALUATED. IT CAN BE
READILY EXPANDED TO INCLUDE ADDITIONAL R/T
PROCEDURE OBJECTIVES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70H208

AD-664 882 9/2 6/4 5/2 5/8
RAND CORP SANTA MONICA CALIF
ANSWERING QUESTIONS BY COMPUTER: A LOGICAL STUDY,

(U)

DEC 67 138P KUHNS, J. L. I
REPT. NO. RM-5428-PR
CONTRACT: F44620-67-C-0043

UNCLASSIFIED REPORT

DESCRIPTORS: (•LEARNING MACHINES, MATHEMATICAL
LOGIC), (•INFORMATION RETRIEVAL, MATHEMATICAL
LOGIC), CYBERNETICS, SYMBOLS, FLOW CHARTING,
COMPUTER LOGIC, MAN-MACHINE SYSTEMS, THEOREMS (U)

CONSIDER A STUDY OF THE PROCESSING OF QUESTIONS
INPUT TO A COMPUTERIZED QUESTION-ANSWERING SYSTEM
SUCH AS THE RAND RELATIONAL DATA FILE (SEE
AD-642 1201). THE PROCESS CONSISTS OF (1)
TRANSFORMING THE NATURAL-LANGUAGE QUESTION INTO A
SYMBOLIC QUESTION (I.E., A CERTAIN FORMULA OF
PREDICATE CALCULUS) AND (2) GENERATING THE
ANSWER BY CALCULATING THE VALUE SET OF THE RESULTING
FORMULA. THIS STUDY IS ADDRESSED TO THE SECOND
STEP. A KEY PROBLEM IS THE IDENTIFICATION OF
'REASONABLE' INPUT QUERIES. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-665 274 5/10 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
A GENERAL SYSTEMS APPROACH TO THE DEVELOPMENT AND
MAINTENANCE OF OPTIMAL LEARNING CONDITIONS, (U)
JAN 68 25P SEIDEL, ROBERT J.; KOPSTEIN,
FELIX F. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-1-68
CONTRACT: DA-44-188-AR0-2
PROJ: DA-1J024701A712
TASK: 1J024701A71201

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE AMERICAN
PSYCHOLOGICAL ASSOCIATION ANNUAL CONVENTION
(75TH), WASHINGTON, D. C., SEP 1967.

DESCRIPTORS: (•LEARNING, OPTIMIZATION),
PROGRAMMED INSTRUCTION; SYSTEMS ENGINEERING,
PROGRAMMING (COMPUTERS); THEORY (U)
IDENTIFIERS: COMPUTER-ADMINISTERED INSTRUCTION (U)

IN THE CONTEXT THAT A GENERAL SYSTEMS APPROACH TO
THE DEVELOPMENT AND MAINTENANCE OF OPTIMAL LEARNING
CONDITIONS IS A POINT OF VIEW RATHER THAN A DOCTRINE,
TWO EMPIRICAL EXAMPLES ARE GIVEN, TO ILLUSTRATE
THE DESIRABILITY OF THE SYSTEMS-LIKE APPROACH IN
STUDYING THE NATURE OF LEARNING, THE ORGANISMS CHOSEN
WERE REPRESENTATIVE OF TWO WIDELY SEPARATE POINTS ON
THE PHYLOGENETIC SCALE, THE FIRST COMES FROM A
STUDY DONE WITH THE HOODED RAT, AND THE SECOND FROM
RESEARCH ON HUMAN BEHAVIOR. FINALLY, AN
ILLUSTRATION OF A TOTAL SYSTEMS APPROACH IS GIVEN BY
DESCRIBING THE DEVELOPMENT OF AN INSTRUCTIONAL MODEL
A PRIORI TO EXPERIMENTATION. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-665 667 5/9

NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF
PROGRAMMED INSTRUCTION FOR COLLEGE STUDENT LEARNING
OF MANEUVERING BOARD SOLUTIONS: I. SMALL STEP
VERSUS 'CONDENSED' EXPLANATION CHAPTERS. (U)
DESCRIPTIVE NOTE: RESEARCH REPT.,
FEB 68 23P MEYER, JOHN K. I
REPT. NO. NPRA-SRR-68-16
PROJ: PFO170301F02

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
EFFECTIVENESS), (*PLOTING BOARDS, PROGRAMMED
INSTRUCTION), TEACHING METHODS, NAVIGATION,
LEARNING, COMBAT INFORMATION CENTERS, NAVAL
TRAINING, NAVAL PERSONNEL (U)

COMPLETION TIME FOR TWO TYPES OF PROGRAMMED
INSTRUCTION IN MANEUVERING BOARD SOLUTIONS OF
RELATIVE MOTION PROBLEMS WAS COMPARED USING TWO
GROUPS OF 10 MALE COLLEGE FRESHMEN EQUATED ON
APTITUDE. LINEAR EXPLANATION CHAPTERS IN THE FIRST
TYPE ('SMALL STEP') CONSISTED OF SMALL,
REPETITIVE FRAMES, WHILE THE LINEAR EXPLANATION
CHAPTERS IN THE SECOND TYPE ('CONDENSED')
CONSISTED OF LARGE FRAMES PRESENTING THE SAME
INFORMATION. THE INSTRUCTIONAL PATTERN IN THE TWO
EQUIVALENT TEXTS CONSISTED OF AN EXPLANATION CHAPTER
FOLLOWED BY A 'PRACTICE,' OR PROBLEM-WORKING,
CHAPTER. THE CONDENSED PROGRAM WAS FOUND TO
REQUIRE OVER THREE HOURS LESS READING TIME FOR THE
EXPLANATION CHAPTERS. A STATISTICALLY SIGNIFICANT
DIFFERENCE OVER 30 PER CENT, WITH NO REDUCTION IN
FINAL EXAMINATION SCORE, IT WAS CONCLUDED THAT
SMALL STEP EXPLANATIONS OF MANEUVERING BOARD SOLUTION
METHODS ARE UNNECESSARY FOR PERSONNEL OF COLLEGE
APTITUDE. FURTHER STUDY OF VARYING TYPES OF
CONDENSED PROGRAMMED MANEUVERING BOARD INSTRUCTION
WILL BE REQUIRED TO DETERMINE THE BEST TYPE FROM THE
STANDPOINT OF TIME SAVED FOR USE WITH NAVAL OFFICER
CANDIDATES OR BEGINNERS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-665 891 5/10 6/4 9/2
RAND CORP SANTA MONICA CALIF
PERFORMANCE OF A READING TASK BY AN ELEMENTARY
PERCEIVING AND MEMORIZING PROGRAM. (U)
JUL 61 15P FEIGENBAUM, EDWARD A. ; SIMON,
HERBERT A. ;
REPT. NO. P-2358

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
CALIFORNIA UNIV., BERKELEY, AND CARNEGIE INST, OF
TECH., PITTSBURGH, PA.

DESCRIPTORS: (MEMORY, SIMULATION), COMPUTER
PROGRAMS, READING, LEARNING, WORD ASSOCIATION,
STIMULATION, RESPONSES, INFORMATION RETRIEVAL,
VISUAL PERCEPTION, ARTIFICIAL INTELLIGENCE (U)
IDENTIFIERS: COMPUTER SIMULATION (U)

SOME EXPERIMENTS ARE REPORTED WHICH SHOW THAT THE
MECHANISMS POSTULATED IN EPAM FOR THE ROTE MEMORY
TASKS ARE ADEQUATE FOR SIMULATING, AT LEAST
MACROSCOPICALLY, THE PROCESSES EMPLOYED BY HUMAN
BEINGS IN ACQUIRING THE ABILITY TO READ AND
UNDERSTAND PRINTED WORDS. A SUMMARY DESCRIPTION OF
THE EPAM PROGRAM IS PROVIDED MENTIONING THE MAIN
PROCESSES IT USES IN ROTE MEMORY TASKS. THE MANNER
IN WHICH THESE PROCESSES ARE USED IN LEARNING TO READ
IS DESCRIBED. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-666 344 5/9 5/10
SYSTEM RESEARCH LTD RICHMOND (ENGLAND)
THE ADAPTIVELY CONTROLLED INSTRUCTION OF A
TRANSFORMATION SKILL, (U)
APR 67 16P PASK, GORDON ; LEWIS, BRIAN ;
CONTRACT: AF 61(052)-640, AF 61(052)-402
PROJ: AF-9767
TASK: 976904
MONITOR: AFOSR 68-0448

UNCLASSIFIED REPORT

AVAILABILITY: PUBLISHED IN PROGRAMMED LEARNING,
P74-85 APR 1967.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH LONDON
UNIV, (ENGLAND), INST. OF EDUCATION.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TRANSFER OF
TRAINING), TEACHING MACHINES, LEARNING, TEACHING
METHODS, ADAPTIVE CONTROL SYSTEMS,
REACTION(=PSYCHOLOGY), GREAT BRITAIN (U)

A KEYBOARD SKILL IS DESCRIBED FOR WHICH TWO
DIFFERENT, AND PARTLY CONFLICTING, RULES OF
CORRESPONDENCE EXIST BETWEEN THE SIX STIMULUS LAMPS
AND THE SIX RESPONSE KEYS. AT ANY GIVEN TRIAL, A
SUBSET OF THREE STIMULUS LAMPS IS ILLUMINATED, AND AN
ORIENTATION SIGNAL TELLS S WHICH RULE OF
CORRESPONDENCE HE MUST APPLY. IN THE MAIN
EXPERIMENTAL CONDITION, THE SKILL WAS INSTRUCTED BY
AN ADAPTIVE MACHINE WHICH (A) VARIED THE RELATIVE
FREQUENCY WITH WHICH THE TWO RULES WERE SELECTED, AND
(B) SIMPLIFIED CERTAIN PROBLEMS BY ILLUMINATING
FEWER LAMPS. IN THE FIRST CONTROL CONDITION,
FACILITY (A) WAS DELETED. IN THE SECOND
CONTROL CONDITION, FACILITIES (A) AND (B)
WERE BOTH DELETED. THE RESULTS SHOW THAT THE FULLY
ADAPTIVE CONDITION PRODUCED FASTER LEARNING THAN THE
FIRST CONTROL CONDITION, AND THE LATTER PRODUCED
FASTER LEARNING THAN THE SECOND CONTROL CONDITION.
SOME ADDITIONAL ANALYSIS SUGGESTS THAT DIFFERENT
SUBJECTS LEARNED THE SKILL IN DIFFERENT WAYS, AND
THAT LEARNING IS MORE EFFICIENT IF THE CONFLICTING
RULES OF CORRESPONDENCE ARE REHEARSED IN PARALLEL
RATHER THAN SEQUENTIALLY, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-666 411 5/9 5/8 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
EXPLORATORY STUDY OF INFORMATION-PROCESSING
PROCEDURES AND COMPUTER-BASED TECHNOLOGY IN
VOCATIONAL COUNSELING. (U)
DESCRIPTIVE NOTE: FINAL REPT.,
OCT 67 245P COGSWELL, JOHN F. IESTAVAN,
DONALD P. DONAHOE, CLYDE P. JR.; ROSENQUIST,
BARBARA A. ;
REPT. NO. TM-3718

UNCLASSIFIED REPORT

DESCRIPTORS: (EDUCATION,
PROGRAMMING(COMPUTERS)); DATA PROCESSING
SYSTEMS, STUDENTS, DECISION MAKING, MAN-MACHINE
SYSTEMS, INSTRUCTORS, DESIGN,
ADJUSTMENT(PSYCHOLOGY), PSYCHOMETRICS,
COMPUTER PROGRAMS, INFORMATION RETRIEVAL (U)
IDENTIFIERS: *COUNSELING (U)

THE PURPOSE OF THIS PHASE OF THE WORK WAS TO DESIGN
A MAN-MACHINE COUNSELING SYSTEM. BEFORE THE DESIGN
WORK BEGAN, THE COUNSELING AND GUIDANCE OPERATIONS
WERE SURVEYED IN THE THIRTEEN SCHOOLS DISTRIBUTED
OVER SEVEN STATES IN ORDER TO STUDY THE VARIATION IN
COUNSELING PRACTICE AMONG SCHOOLS. THIS VARIATION
COULD THEN BE CONSIDERED IN SYSTEM DEVELOPMENT WORK
WITH THE SCHOOLS SELECTED FOR THE MAN-MACHINE STUDY.
AFTER THE SURVEY, AN EXPERIMENTATION FIELD SITE WAS
SELECTED. THE FOCUS OF SYSTEM DEVELOPMENT AND
EXPERIMENTATION IS A LARGE SCHOOL COMPLEX IN THE
LOS ANGELES SCHOOL DISTRICT. DETAILED
SYSTEM ANALYSIS WAS PERFORMED OF ALL THE COUNSELING
PROCEDURES EMPLOYED IN THIS SCHOOL COMPLEX AND
WORKSHOPS ON INFORMATION PROCESSING TECHNOLOGY WERE
CONDUCTED FOR THE COUNSELORS. TWO DESIGN TEAMS
WERE THEN FORMED TO SPECIFY MODEL 1 OF THE MAN-
MACHINE SYSTEM. ONE TEAM CONSISTED OF THE SDC
RESEARCHERS AND THE HIGH SCHOOL COUNSELORS; THE
OTHER, OF THE RESEARCHERS AND THE JUNIOR HIGH SCHOOL
COUNSELORS. SOME OF THE MAJOR IDEAS WHICH EMERGED
FROM THE DESIGN SESSIONS ARE: (1) AN
INFORMATION RETRIEVAL SYSTEM FOR STUDENT INFORMATION,
(2) A TRACKING AND MONITORING SYSTEM WHICH WILL
AUTOMATICALLY ALERT THE COUNSELOR WHEN CRITICAL
SITUATIONS OCCUR, (3) AUTOMATED REPORT
GENERATION FOR PREPARING CUMULATIVE RECORDS, REPORT
CARDS, AND OTHER REPORTS OR LISTS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-666 673 9/2 12/2 6/4
CASE-WESTERN RESERVE UNIV CLEVELAND OHIO SYSTEMS RESEARCH
CENTER
LEARNING THROUGH PATTERN RECOGNITION APPLIED TO A
CLASS OF GAMES. (U)
DESCRIPTIVE NOTE: SCIENTIFIC INTERIM REPT.,
MAY 67 156P KOFFMAN, ELLIOT B. ;
REPT. NO. SRC-107-A-67-45
CONTRACT: AF-AFOSR-125-67, NSF-GK-185
PROJ: AF-9769
TASK: 976905
MONITOR: AFOSR 68-0514

UNCLASSIFIED REPORT

DESCRIPTORS: (*LEARNING MACHINES, PROBLEM
SOLVING), (*ARTIFICIAL INTELLIGENCE, LEARNING
MACHINES), PATTERN RECOGNITION, GAME THEORY,
DYNAMIC PROGRAMMING, SET THEORY, COMPUTER
PROGRAMS, THESES (U)

THE OBJECTIVE OF THIS RESEARCH WAS TO INVESTIGATE A
TECHNIQUE FOR MACHINE LEARNING USEFUL IN SOLVING
PROBLEMS INVOLVING FORCING STATES. IN GAMES OR
CONTROL PROBLEMS, A FORCING STATE IS A STATE FROM
WHICH THE FINAL GOAL CAN ALWAYS BE REACHED,
REGARDLESS OF WHAT DISTURBANCES MAY ARISE. A
PROGRAM WHICH LEARNS FORCING STATES IN A CLASS OF
GAMES (IN A GAME-INDEPENDENT FORMAT) BY WORKING
BACKWARDS FROM A PREVIOUS LOSS HAS BEEN WRITTEN.
THE CLASS OF POSITIONS WHICH ULTIMATELY RESULTS IN
THE OPPONENT'S WIN IS LEARNED BY THE PROGRAM (USING
A SPECIALLY DESIGNED DESCRIPTION LANGUAGE) AND
STORED IN ITS MEMORY TOGETHER WITH THE CORRECT MOVE
TO BE MADE WHEN THIS PATTERN REOCCURS. DURING
FUTURE PLAYS OF THE GAME, THESE PATTERNS ARE SEARCHED
FOR. IF THEY ARE FORMED BY THE OPPONENT, THE
LEARNING PROGRAM BLOCKS THEM BEFORE THE OPPONENT'S
WIN SEQUENCE CAN BEGIN. IF THEY ARE FORMED BY THE
LEARNING PROGRAM, IT INITIATES THE WIN SEQUENCE.
THE CLASS OF GAMES IN WHICH THE PROGRAM IS
EFFECTIVE INCLUDES QUBIC, GO-MOKU, HEX, AND
THE SHANNON NETWORK GAMES INCLUDING BRIDG-IT.
THE DESCRIPTION LANGUAGE ENABLES THE LEARNING
PROGRAM TO GENERALIZE FROM ONE EXAMPLE OF A FORCING
STATE TO ALL OTHER CONFIGURATIONS WHICH ARE
STRATEGICALLY EQUIVALENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-667 657 5/10 5/9
PITTSBURGH UNIV PA LEARNING RESEARCH AND DEVELOPMENT
CENTER
THE EFFECTS OF TASK CHARACTERISTICS ON RESPONSE
LATENCY AND LATENCY TRENDS DURING LEARNING AND
OVERLEARNING. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 68 89p JUDD, WILSON A. ;
REPT. NO. TR-7
CONTRACT: NONR-624(18)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: RESEARCH SUPPORTED BY HEW, CONTRACT
OE-3-16-043.

DESCRIPTORS: (LEARNING, PROGRAMMED INSTRUCTION),
RECALL, RETENTION, RESPONSES, WORD ASSOCIATION,
DECISION MAKING, REACTION (PSYCHOLOGY),
REFLEXES, EXPERIMENTAL DESIGN, VERBAL BEHAVIOR,
PERFORMANCE (HUMAN) (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION,
OVERLEARNING, RESPONSE LATENCY (U)

RESPONSE LATENCY WAS STUDIED AS A MEASURE OF
ASSOCIATIVE STRENGTH OR DEGREE OF LEARNING AND AS A
POSSIBLE BASIS FOR INSTRUCTIONAL DECISION-MAKING IN
COMPUTER-ASSISTED INSTRUCTION. LATENCY WAS
INVESTIGATED IN A PAIRED-ASSOCIATE TASK AS A FUNCTION
OF TRAINING PROCEDURE (A COMPARISON OF THE
ANTICIPATION AND RECALL PARADIGMS) AND INFORMATION
TRANSMISSION REQUIREMENTS (A COMPARISON OF TWO,
FOUR, AND EIGHT RESPONSE ALTERNATIVES TO AN EIGHT
ITEM STIMULUS LIST) DURING BOTH ACQUISITION AND
OVERLEARNING. THE MAGNITUDE AND VARIABILITY OF
LATENCY MEASUREMENTS WERE INDEPENDENT OF TRAINING
METHOD DURING ACQUISITION, BUT BOTH WERE REDUCED BY
THE RECALL PARADIGM DURING OVERLEARNING. LATENCY
WAS AN INCREASING FUNCTION OF THE NUMBER OF RESPONSE
ALTERNATIVES DURING BOTH ACQUISITION AND
OVERLEARNING. DURING ACQUISITION, PRIOR TO THE
TRIAL OF LAST ERROR (TLE) FOR EACH ITEM, LATENCY
REMAINED RELATIVELY CONSTANT AND DID NOT DIFFER
BETWEEN CORRECT AND INCORRECT RESPONSES. THERE WAS
A SUBSTANTIAL DROP IN LATENCY FOLLOWING THE TLE.
BOTH PRE- AND POST-TLE LATENCIES WERE AN
INCREASING FUNCTION OF INTRASUBJECT DIFFERENCES IN
ITEM DIFFICULTY. PRE-TLE LATENCIES WERE AN
INVERSE FUNCTION OF SUBJECT LEARNING RATE. POST-
TLE LATENCIES WERE INDEPENDENT OF SUBJECT LEARNING
RATE.

(U)

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-669 281 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
THE APPLICATION OF THEORETICAL FACTORS IN TEACHING
PROBLEM SOLVING BY PROGRAMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 68 74P SEIDEL, ROBERT J.; HUNTER,
HAROLD G. ;
REPT. NO. HUMRRO-TR-68-4
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2J024701A712-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROBLEM SOLVING, *PROGRAMMED
INSTRUCTION), TEACHING METHODS, LEARNING,
MOTIVATION, TRAINING, PROGRAMMERS,
PROGRAMMING(COMPUTERS), RETENTION, TRAINING
DEVICES (U)

IN CONTINUING RESEARCH INTO THE TECHNOLOGY OF
TRAINING, A STUDY WAS UNDERTAKEN TO DEVISE GUIDELINES
FOR APPLYING PROGRAMED INSTRUCTION TO TRAINING
COURSES THAT INVOLVE THE LEARNING OF PRINCIPLES AND
RULES FOR USE IN PROBLEM SOLVING. AS THE RESEARCH
VEHICLE, A PORTION OF THE MATERIAL IN THE ARMY'S
ADPS PROGRAMING SPECIALIST COURSE WAS
PROGRAMED TO EXPLORE SEVERAL DIFFERENT FACTORS IN
USING AUTOMATED INSTRUCTION TO TEACH COMPUTER
PROGRAMMING. EXPERIMENTAL VERSIONS OF THE COURSE
WERE ADMINISTERED TO OVER 900 SUBJECTS IN VARIOUS
EXPERIMENTAL GROUPINGS. CRITERION AND RETENTION
TESTS BASED ON ACTUAL JOB PROBLEMS WERE USED TO
MEASURE SUBJECTS' PERFORMANCE, ALONG WITH IN-TRAINING
MEASURES. RESULTS IN A SERIES OF PROMPTING/
CONFIRMATION VARIATIONS INDICATED THAT GIVING
SUBJECTS EXTENSIVE STIMULUS SUPPORT DURING TRAINING
HELPS MOTIVATE THEM AND IMPROVES SCORES DURING
TRAINING, BUT HAMPERS THEM IN USING WHAT THEY HAVE
LEARNED, REQUIRING SUBJECTS TO FULLY WRITE OUT
RULES DURING TRAINING HINDERED THEM IN DEVELOPING
PROBLEM-SOLVING SKILLS APPLYING THESE RULES; HOWEVER,
USING MNEMONICS (WRITING ONLY THE NAMES OF
RULES) DURING TRAINING AIDED SUBJECTS IN RETAINING
WHAT THEY HAD LEARNED, PARTICULARLY FOR MORE COMPLEX
MATERIAL. WORKING WITH A VARIETY OF PRACTICE
PROBLEMS FACILITATED THE LEARNING OF PROBLEM-SOLVING
SKILLS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-669 287 5/9 5/10
HARVARD COMPUTING CENTER CAMBRIDGE MASS
COMPUTER-BASED INSTRUCTION: PSYCHOLOGICAL ASPECTS
AND SYSTEMS CONCEPTION OF INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 67 26p STOLUROW, LAWRENCE M. ;
REPT. NO. TR-4
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT
AVAILABILITY: PUBLISHED IN UNIDENTIFIED JOURNAL, P193-
215.

DESCRIPTORS: (TEACHING METHODS, COMPUTER
PROGRAMS), LEARNING, DECISION MAKING,
PROGRAMMING (COMPUTERS), PROGRAMMED INSTRUCTION,
TEACHING MACHINES, CYBERNETICS, REAL TIME, FLOW
CHARTING (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION,
SOCRATES (U)

THE REPORT PRESENTS A CONCEPTUALIZATION OF THE
TEACHING-LEARNING PROCESS IN A WAY THAT PERMITS THE
DEVELOPMENT OF A COMPUTER-BASED INSTRUCTIONAL SYSTEM.
IN THE WORK DESCRIBED, THE CBI SYSTEM FUNCTIONED
AS AN AID IN THE DEVELOPMENT OF REAL-TIME MODELS IN
THE FORM OF COMPUTER-PROGRAMS THAT TEACH, USING
THESE PROGRAMS, RESEARCH CAN BE CONDUCTED RELATING TO
THE DECISION PROCESSES NECESSARY FOR TEACHING. THE
PARTICULAR SYSTEM, SOCRATES, HAS BEEN USED TO:
(1) CONDUCT RESEARCH RELATING TO AN IDIOGRAPHIC
MODEL OF TUTORIAL INSTRUCTION; (2) STUDY BASIC
VARIABLES RELATING TO LEARNING AND TRANSFER; AND
(3) TO DEVELOP THE TECHNOLOGY OF USING A CBI
SYSTEM TO GENERATE LEARNING MATERIALS. RESULTS
FROM SEVERAL STUDIES ARE GIVEN. SOME QUESTIONS OF
PROGRAMMING STRATEGIES WERE EXAMINED WITH SCIENCE
MATERIALS; OTHERS USING LOGIC; OTHERS WITH CULTURE
ASSIMILATORS; AND STILL OTHERS USING SOCRATES AS AN
AUTHOR. THESE STUDIES SHOW HOW CBI SYSTEMS MAY
BE USED IN RESEARCH AND HOW VARIED ARE THE CONTENT
AREAS TO WHICH CBI SYSTEMS ARE APPLICABLE. THEY
ALSO PRESENT ONE VIEW OF SOME OF THE PRINCIPLES THAT
SHOULD BE CONSIDERED IN THE DEVELOPMENT OF SUCH
SYSTEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-670 524 5/9 9/2
WASHINGTON UNIV SEATTLE COMPUTER SCIENCE GROUP
WRITEACOURSE: AN EDUCATIONAL PROGRAMMING
LANGUAGE.
DESCRIPTIVE NOTE: TECHNICAL REPT., (U)
MAY 68 23P HUNT, EARL B. ; ZOSEL, MARY ;
REPT. NO. TR-68-1-02
CONTRACT: AF-AFOSR-1311-67
MONITOR: AFOSR 68-1299

UNCLASSIFIED REPORT

DESCRIPTORS: (•EDUCATION, PROGRAMMING LANGUAGES),
DIGITAL COMPUTERS, PROGRAMMED INSTRUCTION,
TEACHING MACHINES, PROGRAMMING (COMPUTERS),
FEASIBILITY STUDIES, SYNTAX, SEMANTICS,
SUBROUTINES

IDENTIFIERS: COMPUTER AIDED DESIGN, WRITEACOURSE (U)
PROGRAMMING LANGUAGE, ALGOL (U)

A USER ORIENTED LANGUAGE FOR COMPUTER AIDED
INSTRUCTION IS DESCRIBED. THE LANGUAGE IS DESIGNED
FOR IMPLEMENTING PROGRAMMED INSTRUCTION COURSES ON
GENERAL PURPOSE INTERACTIVE COMPUTING SYSTEMS. THE
LANGUAGE CAN BE UTILIZED ON ANY INTERACTIVE COMPUTING
SYSTEM WITH A PL/I COMPILER. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-671 842 5/9 5/10
AMERICAN INSTITUTES FOR RESEARCH IN THE BEHAVIORAL SCIENCES
PALO ALTO CALIF
STUDY OF TRAINING EQUIPMENT AND INDIVIDUAL
DIFFERENCES. THE EFFECTS OF SUBJECT MATTER
VARIABLES. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 7 APR 67-6 APR
68.

MAY 68 70p TALLMADGE, G. KASTEN ;
SHEARER, JAMES W. ; GREENBERG, ANNE M. ;
CONTRACT: N61337-A7-C-0114
PROJ: NAVTRADEVCE-7690-3
MONITOR: NAVTRADEVCE 67-C-0114-1

UNCLASSIFIED REPORT

DESCRIPTORS: (TEACHING METHODS, EFFECTIVENESS),
(LEARNING, PSYCHOMETRICS),
PERFORMANCE (HUMAN), APTITUDE TESTS, PROGRAMMED
INSTRUCTION, EXPERIMENTAL DESIGN, ANXIETY,
REASONING, CORRELATION TECHNIQUES, ANALYSIS OF
VARIANCE, PROBLEM SOLVING, TRAINING FILMS,
DECISION MAKING, PERSONALITY TESTS, MOTIVATION,
NAVAL PERSONNEL, REVIEWS (U)

TWO SEPARATE SUBJECT MATTER AREAS WERE SELECTED FOR
INVESTIGATION WHICH WERE FELT TO REPRESENT TWO
DISTINCT TYPES OF LEARNING SITUATIONS. THE FIRST
SUBJECT WAS A KIND OF LOGICO-MATHEMATICAL PROCEDURE -
- THE TRANSPORTATION TECHNIQUE. THE SECOND
SUBJECT WAS A VISUAL FORM DISCRIMINATION TASK --
AIRCRAFT RECOGNITION. TWO SEPARATE COURSES
WERE DEVELOPED FOR EACH SUBJECT MATTER AREA. ONE
REFLECTED AN INDUCTIVE INSTRUCTIONAL APPROACH AND THE
OTHER A DEDUCTIVE METHOD. EACH OF THE FOUR COURSES
WAS ADMINISTERED TO BETWEEN 55 AND 60 NAVY ENLISTED
MEN. TWENTY-EIGHT MEASURES OF APTITUDES,
INTERESTS, AND PERSONALITY VARIABLES WERE OBTAINED ON
EACH SUBJECT. BASED ON CORRELATION COEFFICIENTS
COMPUTED BETWEEN INDIVIDUAL DIFFERENCE MEASURES AND
EXAMINATION SCORES, AN UNWEIGHTED MEANS ANALYSIS OF
VARIANCE MODEL WAS EMPLOYED TO ASSESS THE EFFECTS OF
INSTRUCTIONAL METHODS, SUBJECT MATTER AREAS, AND
INTEREST LEVELS. THE MOST IMPORTANT FINDING
PRODUCED BY THIS ANALYSIS WAS THE SIGNIFICANT (P<
.001) SECOND ORDER INTERACTION AMONG ALL THREE
INDEPENDENT VARIABLES. THE RESULTS OF THIS STUDY
STRONGLY SUPPORTED THE EXISTENCE OF LEARNING STYLES
AND SUGGEST THAT MULTI-TRACK INSTRUCTION BASED ON
LEARNING STYLES MIGHT BE A COST-EFFECTIVE WAY OF
ENHANCING LEARNING. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-671 937 5/7 9/2 6/4
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER
SCIENCE
NATURAL LANGUAGE LEARNING BY COMPUTER. (U)
DESCRIPTIVE NOTE: DOCTORAL THESIS,
MAY 68 116P SIKLOSSY, LAURENT ;
CONTRACT: SD-146
PROJ: AF-9718
MONITOR: AFOSR 68-1594

UNCLASSIFIED REPORT

DESCRIPTORS: (L) LINGUISTICS, (A) ARTIFICIAL
INTELLIGENCE), (C) COMPUTER PROGRAMS,
LINGUISTICS), RUSSIAN LANGUAGE, GERMAN LANGUAGE,
LEARNING, LEARNING MACHINES, ERRORS, PATTERN
RECOGNITION, VOCABULARY, SET THEORY, MACHINE
TRANSLATION, THESES (U)

LEARNING A NATURAL LANGUAGE IS TAKEN AS AN
IMPROVEMENT IN A SYSTEM'S ABILITY TO EXPRESS
SITUATIONS IN A NATURAL LANGUAGE, THIS
DISSERTATION DESCRIBES A COMPUTER PROGRAM, CALLED
ZBIE, WRITTEN IN IPL-V, WHICH ACCEPTS THE
DESCRIPTION OF SITUATIONS IN A UNIFORM, STRUCTURED
FUNCTIONAL LANGUAGE AND TRIES TO EXPRESS THESE
SITUATIONS IN A NATURAL LANGUAGE, EXAMPLES ARE
GIVEN FOR GERMAN AND, MOSTLY, RUSSIAN, AT RUN-
TIME, ZBIE BUILDS SIMPLE MEMORY STRUCTURES,
PATTERNS AND SETS ARE BUILT ON THE FUNCTIONAL
LANGUAGE, THE TRANSLATION RULES OF THE PATTERNS
AND AN IN-CONTEXT VOCABULARY PROVIDE THE TRANSITION
TO THE NATURAL LANGUAGE, ZBIE IS A CAUTIOUS
LEARNER, AND AVOIDS ERRORS BY SEVERAL MECHANISMS,
ZBIE IS CAPABLE OF SOME EVOLUTIONARY LEARNING.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK00

AD-672 187 5/9 5/2 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
A COMPUTER-BASED SYSTEM INTEGRATING INSTRUCTION AND
INFORMATION RETRIEVAL: A DESCRIPTION OF SOME
METHODOLOGICAL CONSIDERATIONS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 68 44p SELIG, JUDITH A. ; REINECKE,
ROBERT D. ; STOLUROW, LAWRENCE M. ;
REPT. NO. TR-5
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *INFORMATION
RETRIEVAL), TEACHING METHODS, BIBLIOGRAPHIES,
SYSTEMS ENGINEERING, DATA STORAGE SYSTEMS,
TEACHING MACHINES, PROGRAMMING (COMPUTERS),
OPHTHALMOLOGY (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, SUBJECT
INDEX TERMS. IBM 7010 COMPUTERS, IBM 1401
COMPUTERS (U)

THE WORK INCLUDES THE DEVELOPMENT OF A CONCORDANCE
AND THE CONVERSION OF THE PROGRAMMED TEXTBOOK BASIC
OPHTHALMOLOGY, BY ROBERT D. REINECKE,
M.D. AND ROBERT J. HERM, M.D., TO
COMPUTER-ASSISTED INSTRUCTION ON THE IBM 7010 AND
IBM 1401 SYSTEMS. ESSENTIALLY THE REPORT
DESCRIBES THE METHODOLOGY USED TO LOAD A LARGE BODY
OF TEXT ONTO A COMPUTER. AN EFFORT WAS MADE TO
DOCUMENT AND EXPLAIN ALL STEPS, INCLUDING THOSE WHICH
WERE ABANDONED, IN ORDER TO AVOID UNNECESSARY
DUPLICATION IN THE FUTURE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70MK08

AD-672 189 5/9
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS
PERSONNEL RESEARCH GROUP
COMPUTER-AIDED TECHNICAL TRAINING USING ELECTRONIC
EQUIPMENT ON-LINE WITH THE CAI SYSTEM. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 68 41P HUGGETT, GEOFFREY ; DAVIS,
DANIEL J. ; RIGNEY, JOSEPH W. ;
REPT. NO. TR-59
CONTRACT: NONR-228(22)
PROJ: NR-153-093

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH
ILLINOIS UNIV., URBANA. COMPUTER-BASED
EDUCATION RESEARCH LAB.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, MAINTENANCE
PERSONNEL), TRANSMITTER-RECEIVERS, MAINTENANCE,
RADIO COMMUNICATION SYSTEMS, TEACHING METHODS,
STUDENTS, CORRECTIONS, COMPUTERS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, AN/
URC-32, TROUBLESHOOTING, ON-LINE SYSTEMS,
PLATO TEACHING SYSTEM (U)

THE REPORT DESCRIBES AN EXPERIMENTAL COURSE IN THE
OPERATION AND TROUBLESHOOTING OF A COMMUNICATIONS
TRANSCIVER, THE AN/URC-32, IN WHICH THE
TRANSCIVER IS USED AS PART OF AN INSTRUCTIONAL
STATION IN A CAI SYSTEM. THE TRANSCIVER AND THE
CAI SYSTEM ARE HARD-WIRED TOGETHER TO FORM A SINGLE
TRAINING SYSTEM. THE SYSTEM IS PRESENTLY OPERATING
IN THE COMPUTER-BASED EDUCATION RESEARCH
LABORATORY OF THE UNIVERSITY OF ILLINOIS. A
STUDENT'S OPERATION OF SWITCHES ON THE TRANSCIVER
FRONT PANEL IS SENSED BY THE CAI SYSTEM. THE
CAI SYSTEM CAN INSERT AND REMOVE MALFUNCTIONS IN
THE TRANSCIVER UNDER PROGRAM CONTROL. THIS ALLOWS
PRACTICE IN OPERATING AND TROUBLESHOOTING THE
EQUIPMENT TO BE COORDINATED WITH THE PRESENTATION OF
TECHNICAL INFORMATION IN THE LESSONS. THE STUDENT
IS REQUIRED TO PUT HIS KNOWLEDGE OF THIS INFORMATION
TO IMMEDIATE USE IN SOLVING TROUBLESHOOTING PROBLEMS.
THE REPORT DESCRIBES THE INITIAL IMPLEMENTATION OF
THE ABOVE FEATURES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 452 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION GUIDE, (U)
68 153p
CONTRACT: NONR-4747(00)

UNCLASSIFIED REPORT
AVAILABILITY: HARD COPY AVAILABLE FROM ENTELEK
INC., 42 PLEASANT ST., NEWBURYPORT, MASS. 01950,
\$10.00.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *COMPUTER
PROGRAMS), SPECIFICATIONS, STATE-OF-THE-ART
REVIEWS, SPECIAL PURPOSE COMPUTERS, TEACHING
METHODS, PROGRAMMING LANGUAGES, INPUT-OUTPUT
DEVICES (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THE CAI GUIDE CONTAINS THE SPECIFICATIONS OF ALL
OPERATIONAL CAI PROGRAMS THAT HAVE COME UNDER
ENTELEK'S SURVEILLANCE SINCE THE INCEPTION OF THE
CAI INFORMATION EXCHANGE. A TOTAL OF 226
CAI PROGRAMS BY 160 AUTHORS OF 38 CAI CENTERS ARE
CITED. 30 MAJOR SUBJECT MATTER AREAS ARE
REPRESENTED. RESEARCH AND PRELIMINARY RESULTS FROM
OVER 50 PROGRAMS CITED IN THE GUIDE CAN BE FOUND IN
THE REPORT ABSTRACTS OF THE CAI INFORMATION
EXCHANGE. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 567 5/9 5/2
NAVAL TRAINING DEVICE CENTER ORLANDO FLA
PROCEEDINGS OF THE NAVAL TRAINING DEVICE CENTER AND
INDUSTRY CONFERENCE (2ND), (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT.,
NOV 67 360P
REPT. NO. NAVTRADEVCECEN-IH-143

UNCLASSIFIED REPORT

DESCRIPTORS: (*MILITARY TRAINING, SYMPOSIA),
SIMULATION, RADAR TRAINERS, FLIGHT SIMULATORS,
GUNNERY TRAINERS, TEACHING MACHINES, TRAINING
FILMS, DISPLAY SYSTEMS, PROGRAMMED INSTRUCTION,
OPTICAL EQUIPMENT, VALUE ENGINEERING, LOGISTICS,
HUMAN ENGINEERING, AIR FORCE TRAINING, NAVAL
TRAINING, ARMY TRAINING, TEACHING METHODS,
MAINTAINABILITY, CONTRACTS, MANAGEMENT PLANNING,
TRANSFER OF TRAINING, INDUSTRIAL TRAINING,
INSTRUCTORS, STUDENTS (U)

THIS REPORT CONSISTS OF MOST OF THE PAPERS
PRESENTED AND A NUMBER OF PAPERS THAT WERE SUBMITTED
BUT COULD NOT BE PRESENTED DUE TO LACK OF TIME. IT
CONCENTRATES ON THE TECHNICAL PROBLEMS CONFRONTING
ORGANIZATIONS HAVING A PRIME INTEREST IN SIMULATION
FOR TRAINING. IT STRESSES THE COOPERATION OF THE
MILITARY EDUCATOR AND THE TECHNICAL COMMUNITY TO
ACHIEVE A PRODUCT THAT SATISFIES THE TRAINING
MISSION, IS COST EFFECTIVE, AND TRAINING-TIME
EFFECTIVE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 748 5/10 9/2
WASHINGTON UNIV ST LOUIS MO DEPT OF PSYCHOLOGY
PSYCHOLOGICAL RESEARCH IN ADULT LEARNING, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
68 71P DUBOIS, PHILIP H. ;
REPT. NO. TR-15
CONTRACT: NONR-816(14)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO TR-14, AD-672 747,
PRESENTED AT A CONFERENCE HELD AT THE BROMWOODS
RESIDENTIAL CENTER, WASHINGTON UNIV., ST. LOUIS,
MO.

DESCRIPTORS: (PSYCHOMETRICS, ADULTS),
(LEARNING, SYMPOSIA), SYSTEMS ENGINEERING,
PROGRAMMED INSTRUCTION, NAVAL RESEARCH, EDUCATION,
BEHAVIOR, CONTROL SYSTEMS,
PROGRAMMING (COMPUTERS), AUTOMATION, TRAINING (U)
IDENTIFIERS: COMPUTER AIDED DESIGN (U)

THE PRESENT REPORT INCLUDES A NUMBER OF PAPERS
CENTERED AROUND EDUCATIONAL TECHNOLOGY WHICH WERE
PRESENTED AT A CONFERENCE AT THE BROMWOODS
RESIDENTIAL CENTER OF WASHINGTON UNIVERSITY.
AMONG THE TOPICS CONSIDERED WERE THE SYSTEMS
APPROACH TO LEARNING, COMPUTER ASSISTED INSTRUCTION,
THE ROLE OF SIMULATION IN TRAINING, AND PROGRAMMED
LEARNING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 788 5/9
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
COMPUTER-BASED INSTRUCTION. (U)
FEB 68 19P COULSON, JOHN E. ;
REPT. NO. SDC-SP-2859/000/00

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN INTERNATIONAL REVIEW OF
EDUCATION.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *TEACHING
MACHINES), MULTIPLE OPERATION, DISPLAY SYSTEMS,
STUDENTS, MAN-MACHINE SYSTEMS, SEQUENCES,
FEEDBACK, COSTS, PROGRAMMING (COMPUTERS),
DESIGN, EFFECTIVENESS (U)

THE REPORT DESCRIBES THE LATEST COMPUTER-BASED
INSTRUCTION (CBI) SYSTEMS THAT ARE TECHNICALLY
FEASIBLE AND THAT CAN TEACH A VARIETY OF SUBJECT
AREAS TO STUDENTS RANGING IN GRADE LEVEL FROM
KINDERGARTEN TO COLLEGE. HOWEVER, CBI IS STILL
LARGELY IN THE RESEARCH AND DEVELOPMENT STATE.
THERE ARE A FEW, IF ANY, CBI SYSTEMS IN REGULAR
OPERATIONAL USE. AS A CONSEQUENCE, THERE IS LITTLE
EMPIRICAL EVIDENCE THAT CBI IS A PRACTICAL APPROACH
FOR LONG-TERM APPLICATION IN A LARGE NUMBER OF
SCHOOLS, OR THAT CBI CAN TEACH MORE EFFECTIVELY
THAN 'CONVENTIONAL' METHODS. LIMITED EXPERIENCE
INDICATES THAT THE EFFECTIVENESS OF CBI IS LARGELY
DEPENDENT ON THE CARE TAKEN IN: (1) PREPARING
AND REVISING THE CONTENT MATERIAL ITSELF; (2)
DESIGNING THE TEACHING STRATEGY BY WHICH THE COMPUTER
PROGRAM SELECTS SEQUENCES OF MATERIAL TO MEET
INDIVIDUAL STUDENT NEEDS; AND (3) USER-
ENGINEERING OF BOTH THE EQUIPMENT AND THE PROGRAM TO
FACILITATE COMMUNICATION BETWEEN THE HUMAN AND THE
MACHINE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-672 789 5/9 5/1
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
DESIGN OBJECTIVES OF THE INSTRUCTIONAL MANAGEMENT
SYSTEM, (U)
FEB 68 9p SILBERMAN, HARRY F. ;
REPT. NO. SDC-SP-3038/001/00

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT THE SYMPOSIUM ON A
COMPUTER-BASED-INSTRUCTIONAL MANAGEMENT SYSTEM,
SPONSORED BY THE AMERICAN EDUCATIONAL RESEARCH
ASSOCIATION CONFERENCE AT CHICAGO, ILL., 8 FEB
68.

DESCRIPTORS: (*MANAGEMENT PLANNING, *TEACHING
METHODS), INSTRUCTORS, DECISION MAKING,
STUDENTS, PERFORMANCE(HUMAN), COMPUTERS,
INFORMATION RETRIEVAL, CALIFORNIA, LEARNING (U)
IDENTIFIERS: *IMS, INSTRUCTIONAL MANAGEMENT
SYSTEM), *INSTRUCTIONAL MANAGEMENT SYSTEMS,
CLASSROOM INFORMATION SYSTEMS, ELEMENTARY SCHOOLS,
LOS ANGELES CITY SCHOOL DISTRICT, LEARNING
DIFFICULTY (U)

THE INSTRUCTIONAL MANAGEMENT SYSTEM (IMS)
IS A COMPUTER-BASED CLASSROOM INFORMATION SYSTEM
BEING JOINTLY DEVELOPED BY SYSTEM DEVELOPMENT
CORPORATION AND THE SOUTHWEST REGIONAL
LABORATORY. IMS, CURRENTLY OPERATING IN TWO
CALIFORNIA ELEMENTARY SCHOOLS, GIVES TEACHERS BOTH
DIAGNOSTIC AND PRESCRIPTIVE INFORMATION TO AID THEM
IN MAKING INSTRUCTIONAL DECISIONS ABOUT THE PACING OF
THE CLASS, THE REASSIGNMENT OF STUDENTS TO DIFFERENT
ABILITY GROUPS, THE ADMINISTRATION OF SUPPLEMENTARY
REMEDIAL MATERIALS, ETC. THIS PAPER DESCRIBES THE
DESIGN OBJECTIVES OF IMS, ITS OPERATIONAL
FUNCTIONS, AND PRELIMINARY DATA CONCERNING ITS
EFFECTIVENESS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMX08

AD-672 922 5/9
HARVARD COMPUTING CENTER CAMBRIDGE MASS
HARVARD UNIVERSITY COMPUTER-AIDED INSTRUCTION (CAI)
LABORATORY. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAR 68 112P STOLUROW, LAWRENCE M. ;
PETERSON, THEODORE I. ;
REPT. NO. TR-6
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, SCIENTIFIC
RESEARCH), COMPUTERS, TEACHING METHODS,
PROGRAMMING (COMPUTERS), PSYCHOLOGY, INPUT-
OUTPUT DEVICES, LABORATORIES (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, IBM 1400
COMPUTERS, SDS 940 COMPUTERS, S360 COMPUTERS (U)

THE REPORT IS A DETAILED DESCRIPTION OF THE
HARVARD CAI LABORATORY, INCLUDING ITS HISTORY,
ORGANIZATION, FUNCTIONS, STAFFING, PROGRAMS AND
SUPPORT, DISCUSSED ARE MATERIALS RELATING TO CAI
IN GENERAL, SUCH AS PSYCHOLOGICAL RESEARCH, MODES OF
INSTRUCTION, ADVANTAGES AND IMPLEMENTATION OF CAI,
REVIEWED ALSO ARE SPECIFIC PROJECTS OF THIS
FACILITY. A COMPLETE ANNOTATION IS PRESENTED OF
PROGRAMS DEVELOPED FOR THE IBM 1400 SERIES AND
S360 AND THE SDS 940 COMPUTER SYSTEMS,
DETAILED IN THESE PROGRAM ABSTRACTS IS SUCH
INFORMATION AS SUBJECT MATTER, TARGET POPULATION,
LENGTH OF PROGRAM, INSTRUCTIONAL LOGIC, INSTRUCTIONAL
LANGUAGE, COMPUTER, INPUT/OUTPUT DEVICES AND
AUXILIARY EQUIPMENT, (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-673 371 5/9 5/2
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO
MAINTENANCE TRAINING MEDIA - AN ANNOTATED
BIBLIOGRAPHY. (U)
MAY 68 109P VALVERDE, HORACE H. ;
REPT. NO. AMRL-TR-67-151
PROJ: AF-1710
TASK: 171004

UNCLASSIFIED REPORT

DESCRIPTORS: (1) TRAINING DEVICES, BIBLIOGRAPHIES,
DEPARTMENT OF DEFENSE, AIR FORCE RESEARCH,
CLASSIFICATION, TRAINING FILMS, TEACHING MACHINES,
INSTRUCTORS, MAINTENANCE, AIR FORCE PERSONNEL,
LEARNING (U)

THE TRAINING ANALYST MUST BE ABLE TO SPECIFY
TRAINING MEDIA REQUIREMENTS DURING THE EARLY STAGES
OF WEAPON SYSTEMS DEVELOPMENT. ALSO, TRAINING
SPECIALISTS FREQUENTLY NEED TO MAKE TRAINING MEDIA
SELECTIONS FOR CENTER OR BASE LEVEL COURSES. THIS
REPORT PROVIDES SUCH PERSONNEL WITH INFORMATION TO
ASSIST THEM IN THE DEVELOPMENT OF TRAINING EQUIPMENT
REQUIREMENTS. THE SELECTED ANNOTATED BIBLIOGRAPHY
CONTAINS 200 REFERENCES TO GOVERNMENT SPONSORED
TRAINING MEDIA RESEARCH AND DEVELOPMENT REPORTS FROM
1950 THROUGH 1966. ALL OF THESE REPORTS ARE
AVAILABLE THROUGH THE DEFENSE DOCUMENTATION
CENTER (DDC) TO MILITARY AGENCIES AND THEIR
REGISTERED CONTRACTORS. EACH REFERENCE BEARS A
DDC ACCESSION DOCUMENT (AD) NUMBER. RESEARCH
AND DEVELOPMENT REPORTS ON VARIOUS TECHNICAL ASPECTS
OF TRAINING MEDIA (EXCEPT OPERATOR TRAINING)
WHICH MAY BE GENERALIZABLE TO MAINTENANCE ARE
INCLUDED. THEREFORE, THE INFORMATION SHOULD BE USEFUL
IN OTHER FIELDS OF TECHNICAL TRAINING. THE REPORT
DESCRIBES, CLASSIFIES, AND GRAPHICALLY PRESENTS
REPRESENTATIVE TRAINING MEDIA. THE ANNOTATED
BIBLIOGRAPHY CONTAINS REFERENCES TO (1) TRAINING
MEDIA REQUIREMENTS, (2) TRAINING AIDS, INCLUDING
GRAPHICS, MOTION PICTURES, TELEVISION, AND GENERAL
TRAINING AIDS, (3) TRAINERS, AND (4) TEACHING
MACHINES. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

ID-673 654 5/9

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
A LEARNED MAN AT THE FACULTY (UCHENYI NA KAFEDRE),

(U)

AUG 67 13P SPIVAK, S. I
REPT. NO. FTD-HT-67-322

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED ROUGH DRAFT TRANS. FROM
IZVESTIYA (USSR) P3, 29 SEP 66, BY L.
MAROKUS.

DESCRIPTORS: (EDUCATION, USSR), PROGRAMMED
INSTRUCTION, INSTRUCTORS, SCIENTIFIC RESEARCH,
TEACHING METHODS, LEARNING, STANDARDS
IDENTIFIERS: TRANSLATIONS, LECTURES,
DEFICIENCIES

(U)

(U)

THE ARTICLE CALLS ATTENTION TO DEFICIENCIES IN THE
EDUCATION PROCESSES AT INSTITUTIONS OF HIGHER
LEARNING IN U.S.S.R. CERTAIN COURSES ARE
CONSIDERED BEYOND THE SCOPE OF SOME SCHOOLS AND
SHOULD BE ELIMINATED. PROFESSORS SHOULD HAVE
SUFFICIENT TIME FOR RESEARCH IN ORDER TO PRESENT
TIMELY LECTURES. LECTURING SHOULD BE UPGRADED TO
COMMAND RESPECT EQUAL TO RESEARCH PROJECTS. TOO
MANY SCHOOLS AND TEACHERS MEASURE SUCCESS BY QUANTITY
OF THEIR PUBLISHED WORKS. SINCE EDUCATION IS THE
GOAL, LECTURING IS JUST AS IMPORTANT AS THE RESEARCH
ON THE SUBJECT MATTER FOR THE LECTURE.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-673 920 5/9

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
SOME PRINCIPLES OF LEARNING AND LEARNING WITH THE AID
OF MACHINES (NEKOTORYE PRINTSIPY OBUCHENIYA I
OBUCHENIE S POMOSCHYU MASHIN).

(U)

DEC 67 15P DOLYATOVSKI, V. A. I

SOTNIKOV, E. M. I

REPT. NO. FTD-HT-23-631-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF IZVESTIYA
VYSSHIKH UCHEBNYKH ZAVEDENII. ELEKTROMEKHANIKA
(USSR) NO P881-89, 1965.

DESCRIPTORS: (TEACHING MACHINES, USSR),
EDUCATION, STUDENTS, WIRING DIAGRAMS, ELECTRONIC
EQUIPMENT, MATRIX ALGEBRA, INPUT-OUTPUT DEVICES,
INFORMATION THEORY, DECISION MAKING, DECISION
THEORY

(U)

IDENTIFIERS: TRANSLATIONS

(U)

THE NUMBER OF STUDENTS AT THE INSTITUTIONS OF
HIGHER LEARNING OF THE SOVIET UNION INCREASED IN
1963 BY 1.4 TIMES AS COMPARED WITH THE ENROLLMENT IN
1957. THIS PUTS A GREAT STRESS ON THE TEACHING
STAFF AND LEADS TO THE NEED FOR THE RATIONALIZATION
OF THE TEACHING PROCESS. AFTER OUTLINING THE BASIC
PRINCIPLES OF THE LEARNING PROCESS, THE PRESENT
AUTHORS DESCRIBE THE TEACHING PROGRAM FOR THE
STUDENTS OF THE INDUSTRIAL ELECTRONICS COURSE
(WHICH IS THE FOURTH IN THE AUTOMATION AND
TELEMECHANICS CURRICULUM) WHICH THEN SERVED AS
THE BASIS FOR THE CONSTRUCTION OF THE APPROPRIATE
TABLE MODEL ELECTRONIC TEACHING MACHINE. THE
ENTIRE COURSE WAS DIVIDED INTO EIGHT SECTIONS EACH OF
WHICH WAS FURTHER SUBDIVIDED INTO THREE SUBSECTIONS
OR INFORMATION UNITS. THE ARTICLE DESCRIBES THE
PROGRAM AS WELL AS THE DESIGN AND OPERATION OF THE
TEACHING MACHINES. THIS SIMPLE TEACHING MACHINE
WAS USED WITH SUCCESS IN THE TEACHING PROCESS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-674 055 9/2 5/9

SYRACUSE UNIV N Y

LARGE SCALE INFORMATION PROCESSING SYSTEMS, VOLUME
IV. COMPUTERS AND EDUCATION.

DESCRIPTIVE NOTE: FINAL REPT. 26 MAY 66-15 JUL 67,
JUL 67 168P LEPAGE, W. R. ; BABICK, A.

F. ; FISHELL, K. ; OXHANDLER, E. ;

CONTRACT: AF 30(602)-4283

PROJ: AF-5581

TASK: 558102

MONITOR: RADC TR-67-498-VOL-4

(U)

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 5, AD-674 056.

DESCRIPTORS: (*EDUCATION, *COMPUTERS), (*DATA
PROCESSING SYSTEMS, EDUCATION),
PROGRAMMING(COMPUTERS), STUDENTS, TEACHING
METHODS, SPECIFICATIONS, TIME SHARING, PROGRAMMED
INSTRUCTION, CYBERNETICS, PROGRAMMING LANGUAGES
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION

(U)

(U)

THE FIRST SECTION DEALS WITH COMPUTER PROGRAMMING
TECHNIQUES FOR APPLICATION TO COMPUTED AIDED-
INSTRUCTION AIMED AT EVALUATING AND SERVING THE
PROBLEM STUDENT. THE SECOND SECTION SURVEYS THE
FIELD AND TREATS A NUMBER OF EDUCATIONAL USES
INCLUDING STUDENT SELF APPRAISED EDUCATION
MANAGEMENT, LARGE GROUP INSTRUCTION, THE
SPECIFICATION AND USE OF COMPUTER-AIDED INSTRUCTION
LANGUAGES. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-674 517 5/9 9/2
NAVAL ACADEMY ANNAPOLIS MD DEPT OF ENGINEERING
A PRELIMINARY REPORT ON THE USAGE OF TIME-SHARING
REMOTE COMPUTER TERMINALS IN ENGINEERING EDUCATION, (U)
DESCRIPTIVE NOTE: TECHNICAL REPT, DEC 67,
DEC 67 221P MATHIEU, R. D. ROGERS, D.

F. 1
REPT. NO. USNA-E-48-2

UNCLASSIFIED REPORT
AVAILABILITY: MICROFICHE ONLY AFTER ORIGINAL COPIES
EXHAUSTED. PORTIONS OF THIS DOCUMENT ARE ILLEGIBLE. SEE
INTRODUCTION SECTION OF THIS ANNOUNCEMENT JOURNAL FOR CPST
ORDERING INSTRUCTIONS.

DESCRIPTORS: (*EDUCATION, *DIGITAL COMPUTERS),
(*INPUT-OUTPUT DEVICES, *TIME SHARING),
PROGRAMMING (COMPUTERS), COMPUTER PROGRAMS,
NAVAL TRAINING, ENGINEERING, TEACHING METHODS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

THE RESULTS OF THE PRELIMINARY PHASE OF THE USE OF
TIME-SHARING REMOTE COMPUTER TERMINALS IN THE
DEPARTMENT OF ENGINEERING ARE DISCUSSED. THE
PRESENT REPORT COVERS THE PERIOD THROUGH JUNE 1967.
THE VARIOUS TYPES OF COMPUTER PROGRAMS DEVELOPED
ARE BRIEFLY DISCUSSED, AND A NUMBER OF EXAMPLE
PROGRAMS PRESENTED. MORE DETAILED INFORMATION ON
EACH PROGRAM, WITH A LISTING AND TYPICAL RUN ARE
INCLUDED. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-674 706 5/9

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
EXPERIMENT IN APPLICATION OF METHODS OF PROGRAMMED
INSTRUCTION (OPYT PRIMENENIYA METODOV
PROGRAMMIROVANNOGO OBUCHENIYA),

(U)

DEC 67 14P FRADKIN, S. L. ;

REPT. NO. FTD-MT-24-363-67

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF SHEDNEE
SPETSIALNOE OBRAZOVANIE (USSR) NO P39-44 1966.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
EFFECTIVENESS), LEARNING, TEACHING MACHINES,
TEACHING METHODS, TRAINING DEVICES, STUDENTS,
FEEDBACK, USSR

(U)

IDENTIFIERS: TRANSLATIONS

(U)

AN ANALYSIS IS MADE OF VARIOUS FORMS AND METHODS OF
PROGRAMMED LEARNING. THE PRIMARY DEVELOPMENTS IN
THE INTRODUCTION OF PROGRAMMED LEARNING METHODS ARE:
CREATION OF PROGRAMMED TEACHING AIDS; USE OF
EXISTING TEXTBOOKS FOR PROGRAMMED LEARNING;
CONDUCTING PROGRAMMED LECTURES WITH FEEDBACK; AND USE
OF BOTH TEACHING MACHINES AND MACHINELESS METHODS OF
CHECKING KNOWLEDGE. THESE DIRECTIONS ARE DESCRIBED
IN SOME DETAIL AND COMPARED. IT IS NOTED THAT THE
POTENTIAL OF PROGRAMMED LEARNING FOR SAVING THE
STUDENTS' TIME IS OFTEN NOT REALIZED, DUE TO THE FACT
THAT THE STUDENTS ARE NOT ACCUSTOMED TO THE INCREASED
AMOUNTS OF INDEPENDENT WORK WHICH PROGRAMMED LEARNING
REQUIRES. SOME EXAMPLES OF PROGRAMMED METHODS USED
IN THE AUTHOR'S SCHOOL ARE PRESENTED. SUBJECTS
TAUGHT ARE PRIMARILY TECHNICAL.

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-676 123 9/2 5/8
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
PROBLEM SOLVING AND LEARNING BY MAN-MACHINE TEAMS--
PROGRESS AND PLANNED INVESTIGATIONS. (U)
DESCRIPTIVE NOTE: TECHNICAL MEMO,
JUL 67 25p HORMANN, AIKO ;
REPT. NO. SDC-TM-2311/008/00
CONTRACT: NONR-4745(00)
PROJ: NR-348-009

UNCLASSIFIED REPORT

DESCRIPTORS: (•DATA PROCESSING SYSTEMS, •MAN-MACHINE
SYSTEMS), ADAPTIVE SYSTEMS, DECISION MAKING,
PROBLEM SOLVING, INTERACTIONS, LEARNING MACHINES,
LEARNING, TIME SHARING, GAME THEORY, INPUT-
OUTPUT DEVICES (U)
IDENTIFIERS: ON-LINE SYSTEMS, AN/FSQ-32,
SHIMOKU COMPUTER PROGRAM (U)

THE PRIMARY OBJECTIVE OF THE RESEARCH DESCRIBED
HERE IS TO EXPLORE WAYS IN WHICH A MAN AND AN
ADAPTIVE MACHINE CAN BE TEAMED FOR DECISION-MAKING/
PROBLEM-SOLVING TASKS IN SUCH A WAY AS TO AUGMENT
EACH OTHER'S CAPABILITIES AS THEY LEARN. THE FIRST
TWO SECTIONS SUMMARIZE THE MAIN TEXT THAT CONTAINS
DESCRIPTIONS OF THE PROGRESS TO DATE AND PLANNED
INVESTIGATIONS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-676 294 9/2 5/10
CASE-WESTERN RESERVE UNIV CLEVELAND OHIO SYSTEMS RESEARCH
CENTER
A MODEL OF CONCEPT LEARNING, (U)
JUN 68 86P SHERMAN, RICHARD H. ;
REPT. NO. SRC-68-8
CONTRACT: AF-AFOSR-125-67, NSF-GK-1386
PROJ: AF-9769
TASK: 976905
MONITOR: AFOSR 68-2084

UNCLASSIFIED REPORT

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *LEARNING
MACHINES), INFORMATION RETRIEVAL, INPUT-OUTPUT
DEVICES, PROGRAMMING LANGUAGES, FLOW CHARTING,
PATTERN RECOGNITION, MODELS(SIMULATIONS), SET
THEORY, DIGITAL COMPUTERS, ALGORITHMS, ANALOG
SYSTEMS, CYBERNETICS, COMPUTER STORAGE DEVICES (U)
IDENTIFIERS: *CONCEPT LEARNING, EPAM(ELEMENTARY
PERCEIVER AND MEMORIZER), ELEMENTARY
PERCEIVERS AND MEMORIZERS, CONCEPT EPAM COMPUTER
PROGRAM (U)

A LEARNING PROGRAM DESIGNATED CE, CONCEPT-
EPAM, IS DESCRIBED THAT MODIFIES EPAM THROUGH THE
INTRODUCTION OF A SET MEMBERSHIP RELATION. THE
EFFECTS OF THIS EXTENSION ARE CONSIDERED WITH RESPECT
TO METHODS OF STORING CONCEPT DESCRIPTIONS IN MEMORY
AND METHODS OF SPECIFYING LEARNING AND RETRIEVAL.
THE LEARNING STRATEGIES CONSIST OF INTERACTIONS
BETWEEN IMAGE ELABORATION AND TREE MODIFICATION.
IMPLEMENTATIONS OF CE ARE CONSIDERED FOR A
CONCEPT LEARNING TASK AND A PAIR ASSOCIATE TASK.
APPLICABILITY OF CE TO A GEOMETRY ANALOGY TASK
REQUIRING RELATIONAL CONCEPTS IS DISCUSSED. THE
RELATIONSHIP BETWEEN THE LEARNING OF CONCEPTS OF
CONCEPTS AND FEATURE EXTRACTION IS ILLUSTRATED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-676 748 9/2 5/4 5/5
MITRE CORP BEDFORD MASS
USER INPUT MODE AND COMPUTER-AIDED INSTRUCTION, (U)
68 10P MORRILL, CHARLES S. 1GOODWIN,
NANCY C. 1SMITH, SIDNEY L. 1
CONTRACT: AF 19(628)-5165
PROJ: AF-5160
MONITOR: ESD TR-68-398

UNCLASSIFIED REPORT

AVAILABILITY: PUB. IN HUMAN FACTORS, V10 N3 P225-
232 JUN 68.

DESCRIPTORS: (1) INPUT-OUTPUT DEVICES, HUMAN
ENGINEERING), (2) DIGITAL COMPUTERS, TRAINING),
MAN-MACHINE SYSTEMS, TYPEWRITERS, DATA STORAGE
SYSTEMS, CORRELATION TECHNIQUES, MANAGEMENT CONTROL
SYSTEMS (U)
IDENTIFIERS: (1) COMPUTER AIDED INSTRUCTION, LIGHT
PENS, ON-LINE SYSTEMS, AESOP (ADVANCED
EVOLUTIONARY SYSTEM FOR ON-LINE PROCESSING),
ADVANCED EVOLUTIONARY SYSTEM FOR ON-LINE
PROCESSING (U)

AN EVALUATION OF ON-LINE COMPUTER-AIDED INSTRUCTION
WITHIN A MANAGEMENT INFORMATION SYSTEM COMPARED
TYPEWRITER AND LIGHTPEN INPUT MODES AS STUDENTS
LEARNED TO USE THE SYSTEM. THE FOLLOWING
CONCLUSIONS WERE SUPPORTED: (1) COMPUTER-AIDED
INSTRUCTION IS FEASIBLE IN A GENERAL-PURPOSE
MANAGEMENT INFORMATION SYSTEM; (2) IT IS ALSO
FEASIBLE TO DEMONSTRATE RETENTION OF LEARNED MATERIAL
THROUGH COMPUTER-ADMINISTERED TESTS; (3)
PROFESSIONAL TYPING SKILLS ARE NOT NECESSARY TO USE
THE TYPEWRITER INPUT MODE EFFECTIVELY, PROVIDED THAT
THE INPUTS REQUIRED ARE SHORT AND DIRECT; (4)
IN THIS PARTICULAR SETTING THERE SEEMED TO BE
EVIDENCE THAT THE TYPEWRITER WAS A MORE EFFECTIVE
INPUT DEVICE THAN THE LIGHTPEN DURING THE
INSTRUCTIONAL SEQUENCE, BUT THIS EVIDENCE IS
QUESTIONABLE IN VIEW OF CONSIDERABLE INDIVIDUAL
DIFFERENCES AMONG THE STUDENTS; (5) REGARDLESS
OF PERFORMANCE, STUDENTS RESPONDED FAVORABLY TO THEIR
EXPERIENCE WITH COMPUTER-AIDED INSTRUCTION.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-677 028 5/9 17/2 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
TRAINING AND DESIGN REQUIREMENTS FOR AN AIR FORCE
COMPUTER-AIDED TRAINING SUBSYSTEM FOR THE WORLD
WIDE MILITARY COMMAND AND CONTROL SYSTEM, (U)
SEP 68 72P BUTLER, A. K. ; COOPER, R.
J. ; COWDERY, R. S. ; CULLEN, J. W. ; PETERSON,
K. E. ;
CONTRACT: F19628-68-C-0323
PROJ: AF-6917
TASK: 691707
MONITOR: ESD TR-68-415

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMMAND + CONTROL SYSTEMS,
*PROGRAMMED INSTRUCTION), AIR FORCE PERSONNEL,
PROGRAMMING (COMPUTERS), AIR FORCE TRAINING,
FEASIBILITY STUDIES, INPUT-OUTPUT DEVICES, DIGITAL
COMPUTERS (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION, AN/FY0-
45, WORLD WIDE MILITARY COMMAND AND CONTROL SYSTEM,
COMPUTER GRAPHICS, ON-LINE SYSTEMS, COBOL,
JOVIAL PROGRAMMING LANGUAGE, BURROUGHS 3500
COMPUTERS (U)

THIS DOCUMENT PRESENTS THE FINDINGS OF A RESEARCH
STUDY ON A COMPUTER-AIDED TRAINING SUBSYSTEM FOR
USAF COMMAND AND CONTROL PERSONNEL. IN THIS
STUDY, TWO MAJOR TASKS WERE PERFORMED, THE FIRST
WAS THE IDENTIFICATION OF CRITICAL PERSONNEL
FUNCTIONS IN CURRENT AND PROJECTED COMMAND AND
CONTROL SYSTEMS AND THE APPLICABILITY OF ADVANCED
TRAINING STRATEGIES AND METHODS FOR ON-THE-JOB
TRAINING, THE SECOND WAS TO DETERMINE THE
FEASIBILITY OF APPLYING THESE STRATEGIES AND METHODS
THROUGH A COMPUTER-DIRECTED TRAINING SUBSYSTEM WITHIN
THE ELECTRONIC SYSTEMS DIVISION (ESD)
COMMAND AND CONTROL SUPPORT FACILITY, THE
COMPUTER-DIRECTED TRAINING SUBSYSTEM (CDTS)
SERVED AS THE BASIC SYSTEM. INFORMATION WAS
DEVELOPED TO DETERMINE THE ADDITIONAL FEATURES AND
MODIFICATIONS THAT WOULD ENABLE CDTS TO OPERATE
WITHIN THE ESD ENVIRONMENT AND MAKE USE OF THE
COMMUNICATIVE CAPABILITIES OF THE AN/FY0-45
GRAPHICS CONSOLE. (AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-677 204 5/9 5/10
SHUFORD-MASSENGILL CORP LEXINGTON MASS
THE WORTH OF INDIVIDUALIZING INSTRUCTION, (U)
DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT, NO. 1, MAY-
OCT 66.
NOV 66 34p SHUFORD, EMIR H. , JR.;
MASSENGILL, H. EDWARD ;
REPT. NO. SM-R-6
CONTRACT: AF 49(638)-1744, ARPA ORDER-833
MONITOR: AFOSR 68-2156

UNCLASSIFIED REPORT

DESCRIPTORS: (•TEACHING METHODS, COST
EFFECTIVENESS), PSYCHOMETRICS, EDUCATION,
PROGRAMMED INSTRUCTION, RELIABILITY, STATISTICAL
DISTRIBUTIONS, PROBABILITY, PREDICTIONS,
MATHEMATICAL ANALYSIS (U)

IN THE WORTH OF INDIVIDUALIZING INSTRUCTION,
EQUATIONS ARE DEVELOPED FOR EXPRESSING THE COST AND
GAIN FOR APPLYING AN INSTRUCTIONAL SEQUENCE. THE
EXPECTED RETURN FROM ASSIGNING INSTRUCTION ON THE
BASIS OF (1) ADMISSIBLE PROBABILITY MEASUREMENT,
(2) ADMISSIBLE CHOICE TESTING, (3)
CONVENTIONAL CHOICE TESTING, (4) PRIOR
INFORMATION ONLY, AND (5) MATCHING THE AVERAGE
STUDENT IS COMPUTED FOR EACH OF SEVEN DISTRIBUTIONS
OF STATE OF KNOWLEDGE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMKOB

AD-677 479 5/9

TECHNOMICS INC SANTA MONICA CALIF
REQUIREMENT SPECIFICATIONS FOR A DESIGN AND
VERIFICATION UNIT.

(U)

DESCRIPTIVE NOTE: FINAL REPT. 15 MAY-15 OCT 68,
OCT 68 247P PELTON, WARREN G. ;WOLIN,
BURTON R. ;MACMILLAN, MALCOLM C. ;AINSWORTH,
T. DAVID ;

REPT. NO. T-110-68

CONTRACT: N00014-68-C-0470

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEDICAL PERSONNEL, *TRAINING),
(*PROGRAMMED INSTRUCTION, COMPUTERS), NAVAL
PERSONNEL, MILITARY REQUIREMENTS, SPECIFICATIONS,
DESIGN, EDUCATION, DENTAL PERSONNEL, NURSES,
MEDICAL TECHNICIANS, COSTS

(U)

IDENTIFIERS: COMPUTER AIDED INSTRUCTION

(U)

A RESEARCH AND DEVELOPMENT ACTIVITY TO INTRODUCE
NEW AND IMPROVED EDUCATION AND TRAINING TECHNOLOGY
INTO BUREAU OF MEDICINE AND SURGERY TRAINING IS
RECOMMENDED. THE ACTIVITY, CALLED A DESIGN AND
VERIFICATION UNIT, WOULD BE ADMINISTERED BY THE
EDUCATION AND TRAINING SCIENCES DEPARTMENT.
INITIAL RESEARCH AND DEVELOPMENT ARE CENTERED ON
THE APPLICATION OF MULTIMEDIA INSTRUCTIONAL
PACKAGES: SELF-CONTAINED LEARNING MATERIALS AND
THEIR ASSOCIATED DEVICES, DESIGNED USING PROGRAMMED
LEARNING PRINCIPLES. A SECOND STAGE OF ACTIVITIES
FOR THE UNIT INTRODUCES RESEARCH AND DEVELOPMENT IN
THE USE OF COMPUTERS FOR COMPUTER-MANAGED TRAINING
AND COMPUTER-ASSISTED LEARNING. SUGGESTED
SCHEDULES, ACTIVITIES, AND MILESTONES ARE PRESENTED.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-678 578 12/1 9/2
APPLIED LOGIC CORP PRINCETON N J
CRT-AIDED SEMI-AUTOMATED MATHEMATICS. (U)
DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 66-31 MAY 68.
JUL 68 41P BENNETT, JAMES H. ; GUARD,
JAMES R. ; HAYDOCK, ROGER ; OGLESBY, FRANCIS C. ;
SETTLE, WILLIAM L. ;
CONTRACT: F19628-67-C-0100, ARPA ORDER-700

UNCLASSIFIED REPORT

DESCRIPTORS: (MATHEMATICAL LOGIC,
PROGRAMMING (COMPUTERS)), CATHODE RAY TUBE
SCREENS, DIGITAL COMPUTERS, AUTOMATION, COMPUTER
LOGIC, LOGIC CIRCUITS (U)
IDENTIFIERS: SEMI-AUTOMATED MATHEMATICS, SAM 6
COMPUTER PROGRAM (U)

THE REPORT DESCRIBES THE STATUS OF THE SIXTH IN A
SERIES OF SIX EXPERIMENTS IN SEMI-AUTOMATED
MATHEMATICS. THIS EFFORT EXTENDED FROM 1 OCTOBER
1966 THROUGH 31 MAY 1968. THESE EXPERIMENTS
CULMINATED IN LARGE COMPLEX COMPUTER PROGRAMS WHICH
ALLOW A MATHEMATICIAN TO PROVE MATHEMATICAL THEOREMS
ON A MAN-MACHINE BASIS. SAM VI, THE SIXTH PROGRAM,
USES A CATHODE RAY TUBE AS THE PRINCIPAL INTERFACE
BETWEEN THE MATHEMATICIAN AND A HIGH SPEED DIGITAL
COMPUTER. AN ELABORATE LANGUAGE AND LOGICAL
CAPABILITY HAS BEEN IMPLEMENTED IN SAM VI. THESE
INCLUDE I/O LANGUAGES FOR EXPRESSING MATHEMATICAL
STATEMENTS IN A FORM SUITABLE FOR BOTH THE
MATHEMATICIAN AND THE MACHINE TO RECOGNIZE AND HANDLE
WITH EASE AND CONVENIENCE. A LANGUAGE FOR EXPRESSING
AND HANDLING SORTS AND RANGE OF SYMBOLS, AND AUTO-
LOGIC ALGORITHM AND MATCHING ROUTINE. THE LATTER
CONSTITUTE THE CAPABILITY FOR HANDLING,
AUTOMATICALLY, LOGIC WITH EQUALITY. THIS
CAPABILITY IS PARTICULARLY USEFUL AT AN INTERMEDIATE
STATE OF THE PROOF WHEN IT IS DESIRED TO HAVE THE
MACHINE TRY TO VERIFY AUTOMATICALLY A GIVEN PORTION
OF THE PROOF. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-678 740 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
SOME FACTORS IN THE DESIGN OF SYSTEMS FOR COMPUTER-
ASSISTED INSTRUCTION. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 68 49P STOLUROW, LAWRENCE M. ;
REPT. NO. TR-7
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT NATO CONFERENCE ON
MAJOR TRENDS IN PROGRAMMED LEARNING RESEARCH,
NICE, (FRANCE), 13-17 MAY 68.

DESCRIPTORS: (PROGRAMMED INSTRUCTION, DESIGN),
DIGITAL COMPUTERS, STUDENTS, DECISION MAKING,
FACTOR ANALYSIS, MODEL THEORY,
PROGRAMMING (COMPUTERS) (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION (U)

THE DIGITAL COMPUTER IS A SIGNIFICANT TOOL FOR
EXPLICATING AND GUIDING THE INSTRUCTIONAL PROCESS.
TODAY IT IS MOST USEFUL TO DEVELOP FORMALIZED AND
TESTABLE CONCEPTIONS OF INSTRUCTION, BUT IN PRACTICE
IT IS BEING USED MORE TO IMPLEMENT INSTRUCTION.
THE POTENTIAL CONTRIBUTION OF A CAI SYSTEM AS A
CATALYST IN THE PROCESS OF FORMALIZING INSTRUCTION
AND IN TESTING THE VALIDITY OF CONCEPTIONS OF
INSTRUCTION HAS BEEN UNDERESTIMATED. AN ARGUMENT
IS MADE FOR THE DEVELOPMENT AND TESTING OF TEACHING
MODELS THAT ARE PRESCRIPTIVE AS WELL AS DESCRIPTIVE.
THE MOST USEFUL FORM OF DESCRIPTION TO BE USED FOR
THE RULES OF INSTRUCTION IS THE CONTINGENCY
STATEMENT. SETS OF RULES ARE COMBINED TO DEFINE
TEACHING STRATEGIES. AN URGENT RESEARCH PROBLEM IS
THE IDENTIFICATION OF USEFUL VARIABLES TO INCLUDE IN
BOTH THE 'IF' AND 'THEN' STATEMENTS OF TEACHING
RULES. BASED UPON PREVIOUS RESEARCH, THE
IDIOGRAPHIC MODEL USES VARIABLES RELATING TO STUDENT
CHARACTERISTICS AS ONE COMPONENT OF USEFUL 'IF'
STATEMENTS. ANOTHER COMPONENT COMES FROM THE
LEARNING TASK. FIVE MODES OF INSTRUCTION ARE
DESCRIBED FOR THE 'THEN' STATEMENT. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-678 741 5/9 9/2
HARVARD COMPUTING CENTER CAMBRIDGE MASS
THE USE OF COMPUTERS IN HIGH SCHOOLS, (U)
AUG 68 172P CRICK, JOE E. ISTOLURON,
LAWRENCE M. I
REPT. NO. TR-8
CONTRACT: N00014-67-A-0298

UNCLASSIFIED REPORT

DESCRIPTORS: (•PROBLEM SOLVING, COMPUTERS),
(•PROGRAMMING(COMPUTERS), •EDUCATION),
TEACHING METHODS, STUDENTS, PROGRAMMING LANGUAGES,
LEARNING, TIME SHARING, MATHEMATICS (U)
IDENTIFIERS: COMPUTER ANALYSIS, CAL PROGRAMMING
LANGUAGE, COMPUTER AIDED INSTRUCTION, HIGH
SCHOOLS (U)

THE PAPER REPORTS ON ONE HIGH SCHOOL'S EXPERIENCE
WITH A PROJECT TO TEACH STUDENTS HOW TO PROGRAM AND
SOLVE PROBLEMS IN MATHEMATICS USING A COMPUTER.
PART I IS INTENDED AS A GENERAL GUIDE FOR ANY
HIGH SCHOOL ADMINISTRATOR OR MATHEMATICS INSTRUCTOR
WHO IS INTERESTED IN EXPLORING THE INSTALLATION OF A
COMPUTER TERMINAL IN HIS HIGH SCHOOL AND WANTS SOME
IDEA OF THE CONSIDERATIONS INVOLVED AND THE
CONSEQUENCES TO EXPECT. PART II SUMMARIZES ONE
STUDY TO DETERMINE THE RESULTS OF THAT PROJECT. AN
EXTENSIVE APPENDIX INCLUDES COMPUTER PRINTOUT FOR A
NUMBER OF PROGRAMS WRITTEN BY THE STUDENTS, A DATA
PROCESSING PROGRAM TO RECORD AND TABULATE STUDENT
OFF-LINE AND ON-LINE TIME, STATISTICAL CHARTS AND
OTHER MATERIALS PERTAINING TO THE EVALUATION STUDY,
AND COPIES OF MATERIALS GIVEN TO THE STUDENTS DURING
THE COURSE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-681 079 5/9 9/2
ENTELEK INC NEWBURYPORT MASS
COMPUTER-ASSISTED INSTRUCTION: A SURVEY OF THE
LITERATURE. THIRD EDITION. (U)
DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT.,
OCT 68 152P HICKEY, ALBERT E. ;
REPT. NO. TR-8
CONTRACT: N00014-68-C-0236

UNCLASSIFIED REPORT
AVAILABILITY: PAPER COPY AVAILABLE FROM ENTELEK,
INC., 42 PLEASANT ST., NEWBURYPORT, MASS. 01950,
\$8.00.
SUPPLEMENTARY NOTE: SEE ALSO SECOND EDITION DATED JAN
67, AD-649 325.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), PROGRAMMING LANGUAGES, INPUT-OUTPUT
DEVICES, TIME SHARING, EDUCATION, TRAINING
DEVICES, SYSTEMS ENGINEERING, LEARNING,
INFORMATION RETRIEVAL, BIBLIOGRAPHIES, REVIEWS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION (U)

A SURVEY AND SYNTHESIS OF LITERATURE PERTAINING TO
COMPUTER-ASSISTED INSTRUCTION AND PUBLISHED PRIOR TO
JULY 1968 ARE GIVEN. PRINCIPAL HEADINGS INCLUDE
AN OVERVIEW OF CAI, APPLICATIONS OF CAI,
MAJOR CAI CENTERS, SYSTEMS, PROGRAMMING
LANGUAGES, THEORY OF INSTRUCTION, STIMULUS
AND PERFORMANCE FACTORS, PROGRAM GENERATION
AND EVALUATION, AND ADMINISTRATION OF CAI.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 342 9/2

MASSACHUSETTS INST OF TECH CAMBRIDGE

PROJECT MAC: PROGRESS REPORT IV, JULY 1966-
JULY 1967.

(U)

JUL 67 281P

CONTRACT: NONR-4102(01)

PROJ: NR-048-189, RR-003-09-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING SYSTEMS, REPORTS),
ARTIFICIAL INTELLIGENCE, BIOLOGY, CIVIL
ENGINEERING, COMPILERS, MULTIPLEX, DATA STORAGE
SYSTEMS, DISPLAY SYSTEMS, SIMULATION, PATTERN
RECOGNITION, MAN-MACHINE SYSTEMS, PROGRAMMING
LANGUAGES, TIME SHARING, NUMERICAL ANALYSIS,
STATISTICAL ANALYSIS, MULTIPLE OPERATION, REAL
TIME, SCHEDULING

(U)

IDENTIFIERS: *MAC PROJECT, ON LINE SYSTEMS,
COMPUTER AIDED DESIGN, COMPUTERIZED
SIMULATION

(U)

THE BROAD GOAL OF PROJECT MAC IS EXPERIMENTAL
INVESTIGATION OF NEW WAYS IN WHICH ON-LINE USE OF
COMPUTERS CAN AID PEOPLE IN THEIR INDIVIDUAL WORK,
WHETHER RESEARCH, ENGINEERING DESIGN, MANAGEMENT, OR
EDUCATION. (AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 530 5/9 5/7
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
LINGUISTIC AND TUTORIAL MODELING FOR NATURAL
LANGUAGE CAI. (U)
DEC 68 16P BENNIK, F. D. ; SCHWARCZ, R.
M. ; SILBERMAN, H. F. ;
REPT. NO. SDC-SP-3266
CONTRACT: F33615-68-C-1473

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*LINGUISTICS), ENGLISH LANGUAGE, TEACHING
METHODS, COMPUTERS, STUDENTS, DESIGN, SYNTAX,
SEMANTICS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, NATURAL
LANGUAGE (U)

THE PAPER DESCRIBES RESEARCH THAT HAS AS ITS GOAL
THE DEVELOPMENT OF A COMPUTER-BASED TUTORIAL SYSTEM
THAT CAN RECOGNIZE AND GENERATE NATURAL ENGLISH
DISCOURSE, WHILE PROVIDING CAI LESSON AUTHORS WITH
A MEANINGFUL MEANS OF LESSON PREPARATION. THE
PRIMARY LINE OF RESEARCH CONCENTRATES ON NATURAL
LANGUAGE DATA PROCESSING AND CONCEPTUAL MODELING
DESIGNED TO SUPPORT A CAI SYSTEM. THIS HAS
RESULTED IN COMPUTER PROGRAMS THAT PERFORM FUNCTIONAL
OPERATIONS OF SYNTACTIC AND SEMANTIC ANALYSIS,
INFERRING ANSWERS TO QUESTIONS, GENERATION OF
COHERENT DISCOURSE, AND RECOGNITION AND GENERATION OF
PARAPHRASE. A SECOND LINE OF RESEARCH WAS
INITIATED TO FIND DECISION RULES FOR GENERATING AND
SEQUENCING REMEDIAL QUESTIONS AND STATEMENTS. FROM
A STUDY OF VERBAL DATA OBTAINED FROM THE RECORDED
MESSAGES OF TUTORS, AS THEY MONITOR AND AUGMENT THE
INTERACTION BETWEEN STUDENTS AND A COMPUTER-
ADMINISTERED LESSON, A SET OF EFFECTIVE DECISION
RULES IS SOUGHT THAT CAN INVOKE COMPUTER GENERATION
OF REMEDIAL FEEDBACK FROM A SUBJECT MATTER DATA BASE.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 531 5/9 5/7
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF
A DEDUCTIVE QUESTION ANSWERER FOR NATURAL-LANGUAGE
INFERENCE, (U)
NOV 68 53P SCHWARCZ, ROBERT M. ;BURGER,
JOHN F. ;SIMMONS, ROBERT F. ;
REPT. NO. SDC-SP-3272
CONTRACT: F33615-67-C-1986

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*LINGUISTICS), ENGLISH LANGUAGE, COMPUTERS,
SEMANTICS, PROGRAMMING LANGUAGES, TIME SHARING,
DATA PROCESSING SYSTEMS, ALGORITHMS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, NATURAL
LANGUAGE, PROSYNTHEX 3 LANGUAGE PROCESSING SYSTEM,
LISP PROGRAMMING LANGUAGE (U)

THE PAPER DESCRIBES AND EXEMPLIFIES IN DETAIL THE
QUESTION-ANSWERING ASPECTS OF THE PROSYNTHEX
III PROTOTYPE LANGUAGE PROCESSING SYSTEM, WHICH IS
WRITTEN IN LISP 1.5 AND OPERATES ON THE Q-32
TIME-SHARING SYSTEM. THE SYSTEM'S DATA STRUCTURES
AND THEIR SEMANTIC ORGANIZATION, THE DEDUCTIVE
QUESTION-ANSWERING FORMALISM OF RELATIONAL PROPERTIES
AND COMPLEX-RELATION-FORMING OPERATORS, AND THE
QUESTION-ANSWERING PROCEDURES WHICH EMPLOY THESE
FEATURES IN THEIR OPERATION ARE ALL DESCRIBED AND
ILLUSTRATED. EXAMPLES OF THE SYSTEM'S PERFORMANCE
AND OF THE LIMITATIONS OF ITS QUESTION-ANSWERING
CAPABILITY ARE PRESENTED AND DISCUSSED. IT IS
SHOWN THAT THE USE OF SEMANTIC INFORMATION IN
DEDUCTIVE QUESTION ANSWERING GREATLY FACILITATES THE
PROCESS, AND THAT A TOP-DOWN PROCEDURE WHICH WORKS
FROM QUESTION TO ANSWER ENABLES EFFECTIVE USE TO BE
MADE OF THIS INFORMATION. IT IS CONCLUDED THAT THE
DEVELOPMENT OF PROSYNTHEX III INTO A
PRACTICALLY USEFUL SYSTEM TO WORK WITH LARGE DATA
BASES IS POSSIBLE BUT WILL REQUIRE CHANGES IN BOTH
THE DATA STRUCTURES AND THE ALGORITHMS USED FOR
QUESTION ANSWERING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-681 674 6/4

FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO
PROBLEM OF TEACHING MACHINES TO IDENTIFY EXTERNAL
SITUATIONS, (U)

MAR 68 14P ZYZERMAN, M. A. ; BRAVERMAN,
E. M. ; ROZONDER, L. I. ;
REPT. NO. FTD-MT-24-17-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO.
SAMOOBUCHAYUSHCHIESYA AVTOMATICHESKIE SISTEMY (SELF-
INSTRUCTING AUTOMATIC SYSTEMS) MOSCOW, 1966 P3-8.

DESCRIPTORS: (*ARTIFICIAL INTELLIGENCE, *PATTERN
RECOGNITION), LEARNING MACHINES, AUTOMATA,
PROBABILITY, POTENTIAL THEORY, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

A METHOD FOR MACHINE RECOGNITION OF EXTERNAL
STIMULAE, BASED ON SO-CALLED POTENTIAL FUNCTIONS, IS
PROPOSED IN THE PAPER DEALING WITH ARTIFICIAL
INTELLIGENCE. INDIVIDUALS CAN RECOGNIZE EVENTS AND
PATTERNS, AND TEACH OTHERS TO DO SO, FREQUENTLY
WITHOUT BEING ABLE TO EXPLAIN HOW THE PROCESS OF
RECOGNITION COMES ABOUT. FOR INSTANCE, AN
ILLITERATE PERSON CAN BE SHOWN LETTERS 'A' AND 'B'
AND TAUGHT TO RECOGNIZE THESE LETTERS IRRESPECTIVE OF
THEIR SHAPE. THIS PROCESS OF INFORMATION TRANSFER
IS THEREFORE BASED NOT ON EXPLANATION, BUT ON
DEMONSTRATION. THIS TECHNIQUE CAN BE APPLIED TO
LEARNING, PATTERN-RECOGNITION MACHINES, DESIGNED TO
RESPOND TO AUDIO OR VISUAL COMMANDS. THE PROBLEM
OF TEACHING THE AUTOMATON TO CLASSIFY CORRECTLY A
GIVEN INPUT CAN BE DEFINED EITHER IN THE
DETERMINISTIC OR IN THE PROBABILISTIC DOMAIN. THE
REPORT DESCRIBES THE APPLICATION OF POTENTIAL
FUNCTIONS TO THE PROBABILISTIC DOMAIN, AND IN
CONJUNCTION POSTULATES A THIRD THEOREM. IT IS
CONCLUDED THAT IT IS IN PRINCIPLE POSSIBLE TO APPLY
THE DEMONSTRATION TECHNIQUE TO TRAINING OF AUTOMATA
AND THAT A RIGOROUSLY SCIENTIFIC, RATHER THAN AN
EMPIRICAL, APPROACH TO THE SOLUTION OF THIS PROBLEM
IS POSSIBLE. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-684 492 5/10 9/2
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES ELECTRONICS
PERSONNEL RESEARCH GROUP
TASKTEACH: A METHOD FOR COMPUTER-ASSISTED
LEARNING OF SERIAL-ACTION TASKS. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 69 47p RIGNEY, JOSEPH W. ;TOWNE,
DOUGLAS M. ;BOND, NICHOLAS A. , JR;
REPT. NO. TR-62
CONTRACT: NONR-228(22)
PROJ: NR-153-093

UNCLASSIFIED REPORT

DESCRIPTORS: (•COMPUTER PROGRAMS, •LEARNING),
PERFORMANCE(HUMAN), MAN-MACHINE SYSTEMS,
ADAPTIVE SYSTEMS, AUTOMATIC, FEEDBACK, TEACHING
MACHINES, TIME SHARING, ELECTRONIC EQUIPMENT,
MAINTENANCE (U)
IDENTIFIERS: TASKTEACH METHOD, SERIAL ACTION
TASKS, LISP(LIST PROCESSING), LISP PROGRAMMING
LANGUAGE (U)

THE REPORT DESCRIBES A METHOD, TASKTEACH, FOR
TEACHING THE PERFORMANCE OF SERIAL-ACTION TASKS,
USING A COMPUTER TIME-SHARING SYSTEM AND APPROPRIATE
STUDENT TERMINALS. THE METHOD ALLOWS THE STUDENT
TO BE SELF-ADAPTIVE IN THE LEARNING SITUATION BY
TAILOR-MAKING THE KINDS AND DEGREES OF SUPPORT HE
NEEDS AND BY DETERMINING WHEN HE IS READY TO DISPENSE
WITH THIS SUPPORT AND BE TESTED. THIS IS EXPECTED
TO ENCOURAGE THE USE OF SELF-ORGANIZING ABILITIES, TO
FACILITATE THE LEARNING OF MEDIATING SKILLS, AND TO
MOTIVATE THE STUDENT TO LEARN. THE PROCEDURES FOR
IMPLEMENTING THE METHOD AND THE FEATURES WHICH
CONTRIBUTE TO ITS GENERAL USEFULNESS IN TEACHING THE
PERFORMANCE OF SERIAL-ACTION TASKS ARE DESCRIBED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-684 831 5/9 9/2

BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
COMPUTER SYSTEMS FOR TEACHING COMPLEX
CONCEPTS.

(U)

DESCRIPTIVE NOTE: FINAL REPT, 1 OCT 63-30 SEP 68,

MAR 69 186P FEURZEIG, WALLACE ;

REPT. NO. BBN-1742

CONTRACT: NONR-4340(100)

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
PROGRAMMING(COMPUTERS)), PROBLEM SOLVING,
MATHEMATICS, PHYSICS, MEDICINE

(U)

IDENTIFIERS: *COMPUTER AIDED INSTRUCTION

(U)

THIS RESEARCH CONCERNS VARIOUS WAYS OF USING
COMPUTERS FOR TEACHING PROBLEM-SOLVING CONCEPTS AND
SKILLS. NEW LINES OF APPROACH TO PROGRAMMED
TEACHING, PROGRAMMING, AND INSTRUCTIONAL MONITORING
WERE INVESTIGATED IN VARIOUS INSTRUCTIONAL CONTEXTS
INCLUDING MATHEMATICS, PHYSICS, AND MEDICINE. FOUR
PROGRAMMING SYSTEMS--MENTOR, STRINGCOMP, SIMON,
AND LOGO--WERE DESIGNED AND USED AS AN INTEGRAL
PART OF THESE INVESTIGATIONS. THE SYSTEMS ARE
DESCRIBED AND THEIR CAPABILITIES DEMONSTRATED IN
INSTRUCTIONAL APPLICATIONS OF SEVERAL KINDS. THE
WORK SUGGESTS SOME NEW WAYS IN WHICH COMPUTERS MIGHT
MAKE VALUABLE CONTRIBUTIONS TO EDUCATION. (1)
THE TEACHING OF APPROPRIATE PROGRAMMING LANGUAGES
CAN PROVIDE A CONCEPTUAL AND OPERATIONAL FRAMEWORK
FOR THE TEACHING OF MATHEMATICS, (2) UTILIZING
DIAGNOSTIC CUES, INSTRUCTIONAL MONITORS CAN ENHANCE
THE TEACHING OF PRACTICAL SUBJECTS (NAVIGATION,
LANGUAGES, MUSIC) WHOSE MASTERY REQUIRES THE
INTEGRATION OF MECHANICAL AND INTELLECTUAL SKILLS.
(AUTHOR)

(U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-685 498 5/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
INNOVATIONS FOR TRAINING. (U)
DESCRIPTIVE NOTE: PROFESSIONAL PAPERS,
FEB 69 46P MCFANN, HOWARD H. ; SEIDEL,
ROBERT J. ; WILLARD, NORMAN, JR. ; CRAWFORD,
MEREDITH P. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-6-69
CONTRACT: DA-44-188-ARO-2
PROJ: DA-2-J-062107-A-712

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT U. S. CONTINENTAL
ARMY COMMAND TRAINING INNOVATIONS CONFERENCE,
FT. BENNING, GA. 17-18 SEP 68.

DESCRIPTORS: (ARMY TRAINING, MANAGEMENT
PLANNING), REPORTS, TEACHING METHODS, APTITUDE
TESTS, CLASSIFICATION, PROGRAMMING (COMPUTERS),
MOTIVATION, PERFORMANCE (HUMAN), ADVANCED
PLANNING, PROGRAMMED INSTRUCTION (U)
IDENTIFIERS: TRAINING INNOVATIONS, COMPUTER AIDED
INSTRUCTION (U)

RESEARCH IN THE AREAS OF ARMY TRAINING PROGRAMS
AND IN THE ARMY TRAINING SYSTEM IS REPORTED IN THIS
COLLECTION OF FOUR PAPERS: 'INDIVIDUALIZATION OF
ARMY TRAINING,' 'DISCUSSION OF A UNIQUE
APPROACH TO CAI: PROJECT IMPACT,' 'STUDENT
MOTIVATION,' AND 'TRAINING IN THE 70S AND 80S.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-686 422 5/9
AEROSPACE MEDICAL RESEARCH LABS WRIGHT-PATTERSON AFB
OHIO
EFFECT OF CONFIRMATION PEEKING AND RESPONSE MODE ON
PROGRAMMED INSTRUCTION. (U)
DESCRIPTIVE NOTE: FINAL REPT, APR 65-JAN 66,
DEC 68 33P VALVERDE, HORACE H, ;
REPT. NO. AMRL-TR-67-225
PROJ: AF-1710
TASK: 171003

UNCLASSIFIED REPORT

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
REACTION(PSYCHOLOGY)), AIR FORCE TRAINING,
LEARNING, AIR FORCE PERSONNEL, EFFECTIVENESS,
TIME, PILOTS, RADAR, SYMPOSIA (U)

AN EXPERIMENT WAS CONDUCTED TO DETERMINE THE EFFECT
OF PEEKING ON PROGRAMMED INSTRUCTION. THE STUDY
TESTED THE FOLLOWING HYPOTHESES: (1) THE
REQUIREMENT FOR OVERT RESPONSES DOES NOT INCREASE
LEARNING IN PROGRAMMED INSTRUCTION, (2) DEVICES
OR FORMATS TO PRECLUDE CONFIRMATION PEEKING DO NOT
INCREASE THE EFFECTIVENESS OF PROGRAMMED INSTRUCTION,
AND (3) TIME CAN BE SAVED BY ELIMINATING THE
REQUIREMENT FOR OVERT RESPONSES. TWO GROUPS OF 39
SUBJECTS EACH WERE USED. THE SUBJECTS WERE
COMMISSIONED OFFICER AIR FORCE PILOT TRAINEES AND
AIR FORCE RESERVE OFFICER TRAINING CORPS
(AFROTC), JUNIOR AND SENIOR COLLEGE STUDENTS
MATCHED ON THE BASIS OF SCORES OBTAINED ON THE
OFFICER QUALITY COMPOSITE OF THE AIR FORCE
OFFICER QUALIFYING TEST (AFOQT). THE
STIMULUS MATERIAL WAS A RADAR ORIENTATION PROGRAMMED
TEXT. RESULTS OF THE STUDY WERE: (1) PEEKING
DID NOT REDUCE THE EFFECTIVENESS OF PROGRAMMED
INSTRUCTION; (2) STUDENTS WHO RESPONDED COVERTLY
LEARNED AS EFFICIENTLY AS STUDENTS WHO RESPONDED
OVERTLY; AND (3) COVERT RESPONDING DID NOT SAVE
INSTRUCTIONAL TIME. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-686 598 9/4 9/2 6/4
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER
ADAPTIVE DECOMPOSITION OF MIXTURES: A UNIFYING
APPROACH, (U)
68 SP LAINIOTIS, D. G. :
CONTRACT: AF-AFOSR-766-67
PROJ: AF-4751
MONITOR: AFOSR 69-1051TR

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE NATIONAL
ELECTRONICS CONFERENCE, V24 P104-106 1968.

DESCRIPTORS: (*INFORMATION THEORY, PATTERN
RECOGNITION), (*LEARNING MACHINES, PATTERN
RECOGNITION), (*PATTERN RECOGNITION,
CLASSIFICATION), ADAPTIVE SYSTEMS, LEARNING,
PROBABILITY, ALGORITHMS, THEOREMS (U)
IDENTIFIERS: PATTERN CLASSIFIERS, BAYES OPTIMAL
LEARNING (U)

A UNIFYING FORMULATION OF BAYES-OPTIMAL LEARNING,
FOR MINIMUM CONDITIONAL-RISK ADAPTIVE PATTERN
CLASSIFICATION HAS BEEN PROPOSED THAT RESULTS IN A
NEW CLASS OF FIXED-SIZE, FIXED-MEMORY STRUCTURALLY
INVARIANT LEARNING MACHINES FOR THE DECOMPOSITION
(LEARNING) OF MIXTURE PROBABILITY SPACES WITHOUT
NECESSARY QUANTIZATION OF THE UNKNOWN PARAMETER SPACE
AND OBSERVATION SPACE; THE LATTER REQUIRED IN
PREVIOUS INVESTIGATIONS OF THE NONPARAMETRIC LEARNING
PROBLEM. THE APPROACH IS GENERAL AND APPLIES TO
ALL MODES OF LEARNING E.G. UNSUPERVISED OR SUPERVISED
LEARNING AND/OR NONPARAMETRIC OR PARAMETRIC LEARNING
PROBLEMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-687 746 9/2 5/7
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS
THE TEACHABLE LANGUAGE COMPREHENDER: A SIMULATION
PROGRAM AND THEORY OF LANGUAGE. (U)
JAN 69 69P QUILLIAN, M. ROSS :
REPT. NO. SCIENTIFIC-10, BBN-1693
CONTRACT: F19628-68-C-0125, F33615-67-C-1982
PROJ: ARPA ORDER-627, AF-8668
MONITOR: AFRL 69-0108

UNCLASSIFIED REPORT

DESCRIPTORS: (•LEARNING MACHINES, •ENGLISH
LANGUAGE), COMPUTATIONAL LINGUISTICS, COMPUTER
STORAGE DEVICES, SIMULATION, THEORY, SEMANTICS,
PROGRAMMING(COMPUTERS, (U)
IDENTIFIERS: TEACHABLE LANGUAGE COMPREHENDER
COMPUTER PROGRAM, NATURAL LANGUAGE (U)

THE TEACHABLE LANGUAGE COMPREHENDER (TLC)
IS A PROGRAM DESIGNED TO BE CAPABLE OF BEING TAUGHT
TO 'COMPREHEND' ENGLISH TEXT, WHEN TEXT WHICH
THE PROGRAM HAS NOT SEEN BEFORE IS INPUT TO IT. IT
COMPREHENDS THAT TEXT BY CORRECTLY RELATING EACH
(EXPLICIT OR IMPLICIT) ASSERTION OF THE NEW TEXT
TO A LARGE MEMORY. THIS MEMORY IS A 'SEMANTIC
NETWORK' REPRESENTING FACTUAL ASSERTIONS ABOUT THE
WORLD. THE PROGRAM ALSO CREATES COPIES OF THE
PARTS OF ITS MEMORY WHICH HAVE BEEN FOUND TO RELATE
TO THE NEW TEXT, ADAPTING AND COMBINING THESE COPIES
TO REPRESENT THE MEANING OF THE NEW TEXT. BY THIS
MEANS, THE MEANING OF ALL TEXT THE PROGRAM
SUCCESSFULLY COMPREHENDS IS ENCODED INTO THE SAME
FORMAT AS THAT OF THE MEMORY. IN THIS FORM IT CAN
BE ADDED INTO THE MEMORY. FACTS AND READING
ABILITIES MAY BE TAUGHT TO THE PROGRAM AS NEEDED.
THIS INFORMATION IS GENERALIZED IN TLC AND HENCE
A SINGLE ADDITION CAN OFTEN PROVIDE A LARGE INCREMENT
IN TLC'S EFFECTIVE KNOWLEDGE OF THE WORLD, AND IN
ITS OVERALL ABILITY TO COMPREHEND TEXT. THE
PROGRAM'S STRATEGY IS PRESENTED AS A GENERAL THEORY
OF LANGUAGE COMPREHENSION. (AUTHOR) (U)

UNCLASSIFIED

DOC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHKOB

AD-687 842 9/2 5/9

SYRACUSE UNIV N Y

LARGE SCALE INFORMATION PROCESSING SYSTEM, VOLUME
III, MODEL BUILDING AND EDUCATIONAL USE OF
COMPUTERS, (U)

DESCRIPTIVE NOTE: ANNUAL REPT, NO. 1, 16 JUL 67-15 JUL
68.

APR 69 145P PETERSON, PHILIP L. ; CARNES,
ROBERT ; REID, ILENE ; O'CONNELL, EDWARD J. ;
ATHERTON, PAULINE ;

CONTRACT: F30602-68-C-0013

PROJ: AF-5581

TASK: 558102

MONITOR: RADC TR-68-401-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-687 840 AND
VOLUME 2, AD-687 841.

DESCRIPTORS: (1) DATA PROCESSING SYSTEMS,
(2) EDUCATION), DIGITAL COMPUTERS, DESIGN,
INVENTORY, TRAINING FILMS, MATHEMATICAL MODELS,
PROGRAMMING (COMPUTERS) (U)

IDENTIFIERS: COMPUTER AIDED DESIGN, COMPUTER AIDED
INSTRUCTION (U)

THE REPORT COVERS (1) COMPUTER-AIDED DESIGN OF
INVENTORY SYSTEMS, (2) COMPUTER-AIDED EDUCATION,
(3) COMPUTER-AIDED INSTRUCTION, AND (4)
COMPUTER-AIDED MOVIE-MAKING FOR CHEAP RAPID
PRODUCTION OF TRAINING FILMS. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OMK08

AD-689 016 5/9 9/2
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
COMPUTERS IN EDUCATION: THE COPERNICAN REVOLUTION
IN EDUCATION SYSTEMS, (U)
MAY 69 9P SEIDEL, ROBERT J. ;
REPT. NO. HUMPRO PROFESSIONAL PAPER-16-69
CONTRACT: DAMC19-69-C-0018
PROJ: DA-2-J-063101-D-734

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN COMPUTERS AND AUTOMATION,
V18 N3 MAR 69.

DESCRIPTORS: (PROGRAMMED INSTRUCTION,
PREDICTIONS), COMPUTERS, LEARNING, TEACHING
METHODS, MAN-MACHINE SYSTEMS, COMPUTERS,
EDUCATION, PREDICTIONS, TRANSFORMATIONS,
EFFECTIVENESS, THEORY (U)
IDENTIFIERS: COMPUTER AIDED INSTRUCTION (U)

IN THE PAPER THE PREDICTION OF SUCCESS IN THE USE
OF COMPUTERIZED EDUCATION AND TRAINING SYSTEMS IS
MADE. THE AUTHOR BELIEVES THAT MAN WILL HAVE TO
RELINQUISH HIS EGOCENTRIC ROLE IN TEACHING TO BE
REPLACED BY INTERDISCIPLINARY INSTRUCTIONAL TEAMS IN
THE DESIGN OF CONTENTS OF COURSES. THE SYSTEM FOR
INFORMATION EXCHANGE BETWEEN LEARNER AND KNOWLEDGE
WILL BECOME FAR MORE EXPLICIT, MORE EFFICIENT, AND
MORE RELIABLE THROUGH THE USE OF COMPUTERS.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /0HK08

AD-689 104 5/9
NAVAL PERSONNEL RESEARCH ACTIVITY SAN DIEGO CALIF NAVY
TRAINING RESEARCH LAB
THE RELATIVE EFFICIENCY OF PRETESTING AND TWO TYPES
OF PROGRAMMED INSTRUCTION FOR SOLVING MANEUVERING
BOARD PROBLEMS. (U)
DESCRIPTIVE NOTE: FINAL REPT..
MAR 69 19p MEYER, JOHN K. ;
PROJ: PF395220040107
MONITOR: NPRA SRR-69-20

UNCLASSIFIED REPORT

DESCRIPTORS: (PROBLEM SOLVING, PROGRAMMED
INSTRUCTION), APTITUDE TESTS,
PERFORMANCE(HUMAN), CLASSIFICATION, TEACHING
METHODS, LEARNING, OPTIMIZATION, PERSONNEL
MANAGEMENT, NAVAL TRAINING, CORRELATION TECHNIQUES,
STATISTICAL PROCESSES, NAVAL PERSONNEL (U)
IDENTIFIERS: MANEUVERING BOARD PROBLEMS (U)

STUDY TIME FOR A LARGE FRAME AND A SMALL FRAME TYPE
OF PROGRAMMED EXPLANATION IN MANEUVERING SOLUTIONS
WAS COMPARED USING TWO EQUATED, PRETESTED GROUPS OF
ENLISTED MEN IN A BASIC CIC TECHNIQUES COURSE, AND
TWO EQUATED GROUPS ASSIGNED TO BASIC ELECTRICITY AND
ELECTRONICS TRAINING. IT WAS FOUND THAT, BY USING
PRETESTING, AS MANY AS 60 PERCENT OF THE CIC
TECHNIQUES STUDENTS COULD SAVE STUDY TIME BY ENTERING
THE LEARNING PROGRAM AT AN ADVANCED LEVEL, AND THAT
AS MUCH AS 42 PERCENT OF STUDY TIME COULD BE SAVED BY
USING A FEW LARGE RATHER THAN MANY SMALL FRAMES.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-689 113 5/9 9/2
NAVAL WEAPONS LAB DAHLGREN VA
COMPUTER ASSISTED INSTRUCTION: A SELECTED
BIBLIOGRAPHY AND KWIC INDEX. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
APR 69 179P ENGEL, GERALD L. ;
REPT. NO. NWL-TR-2283

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-638 892, AD-645 654,
AND AD-659 987.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION,
*COMPUTERS), BIBLIOGRAPHIES, INDEXES, MILITARY
TRAINING, TEACHING METHODS (U)
IDENTIFIERS: *COMPUTER AIDED INSTRUCTION, KWIC
INDEXES (U)

THE REPORT CONSISTS OF A KWIC INDEX AND AN
ANNOTATED BIBLIOGRAPHY BY AUTHOR CONTAINING 570
ITEMS. (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-689 900 3/9
GEORGE WASHINGTON UNIV ALEXANDRIA VA HUMAN RESOURCES
RESEARCH OFFICE
DEVELOPING PROGRAMS FOR TEACHERS. (U)
JUN 69 21p LANGE, CARL J. ;
REPT. NO. HUMRRO PROFESSIONAL PAPER-20-69

UNCLASSIFIED REPORT
AVAILABILITY: PUR. IN PREPARING EDUCATORS TO
MEET EMERGING NEEDS. P112-129 MAR 69.
SUPPLEMENTARY NOTE: PART ONE OF 'DESIGNING PREPARATION
PROGRAMS FOR THE FUTURE: UTILIZING A SYSTEMS
APPROACH.'

DESCRIPTORS: (*INSTRUCTORS, TRAINING),
(*PROGRAMMED INSTRUCTION, TRANSFORMATIONS);
EDUCATION, RESEARCH PROGRAM ADMINISTRATION,
SEQUENCES, PSYCHOMETRICS, JOB ANALYSIS,
EFFECTIVENESS, MODELS(SIMULATIONS),
INTERACTIONS, LEADERSHIP (U)
IDENTIFIERS: SYSTEMS ANALYSIS, TEACHER PUPIL
INTERACTIONS (U)

A SYSTEMS APPROACH TO DEVELOPMENT OF TEACHER
TRAINING PROGRAMS IS DESCRIBED, AND THE UTILIZATION
OF THE SYSTEMS APPROACH IN THE DESIGN OF TEACHER
EDUCATION PROGRAMS IS DISCUSSED. PARTICULAR
ATTENTION IS GIVEN TO THE IMPORTANCE OF THE SYSTEMS
APPROACH IN PROVIDING TRAINING PROGRAMS THAT ARE
RELEVANT TO THE TEACHER'S ROLES. LONG-TERM AND
SHORT-TERM FUTURE TRENDS ARE DISCUSSED IN REFERENCE
TO WORK ON JOB MODELS FOR THE TEACHER.
CONSIDERATIONS OF CURRICULUM DESIGN WHICH PROVIDE
PRACTICE INTEGRATED WITH THEORY FROM BEHAVIORAL
SCIENCE AND SUBJECT MATTER CONTENT ARE PRESENTED.
EXAMPLES OF RESEARCH AND DEVELOPMENT ON TEACHER
TRAINING AND RELATED TRAINING PROBLEMS ARE BRIEFLY
DESCRIBED TO SUGGEST CURRENT AND FUTURE TRENDS AND TO
PROVIDE ILLUSTRATIONS OF SOME OF THE CONCEPTS NOTED.
(AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. 70MK08

AD-690 590 5/10

MICHIGAN UNIV ANN ARBOR HUMAN PERFORMANCE CENTER

HOW ASSOCIATIONS ARE MEMORIZED. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,

DEC 68 44P GREENO, JAMES G. ;

REPT. NO. TR-12, 08773-32-T

CONTRACT: AF 49(638)-1736

PROJ: AF-920F, AF-5002

MONITOR: AFOSR 69-1775YR

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY, THEORY), LEARNING,
STATISTICAL ANALYSIS, PERFORMANCE TESTS, DATA
STORAGE SYSTEMS, INFORMATION RETRIEVAL, TRANSFER OF
TRAINING, PSYCHOMETRICS (U)

IDENTIFIERS: PAIRED ASSOCIATE LEARNING, STIMULUS
RESPONSE UNITS, MARKOV MODELS (U)

IT IS OBSERVED THAT PERFORMANCE IN TASKS INVOLVING
RECALL OR RECOGNITION OF ITEMS SEEMS TO BE EXPLAINED
BEST WITH CONCEPTS OF STORAGE AND RETRIEVAL, RATHER
THAN FORMATION OF ASSOCIATIVE CONNECTIONS.
EVIDENCE IS PRESENTED THAT THIS IS ALSO TRUE OF
PAIRED-ASSOCIATE MEMORIZING, AND IT IS PROPOSED THAT
THE STAGES OF MEMORIZING ARE STORAGE AND LEARNING TO
RETRIEVE. STATISTICAL METHODS ARE PRESENTED FOR
OBTAINING MEASUREMENTS OF DIFFICULTY IN EACH OF TWO
STAGES OF LEARNING, USING A MARKOV MODEL. IN
EXPERIMENTS WITH VARYING RESPONSE DIFFICULTY AND
STIMULUS SIMILARITY, THE DIFFICULTY OF THE FIRST
STAGE DEPENDED ON BOTH STIMULI AND RESPONSES, BUT THE
SECOND STAGE DEPENDED ONLY ON THE STIMULI. THIS
FAVORS THE STORAGE-RETRIEVAL THEORY, OVER THE
HYPOTHESIS THAT THE FIRST STAGE IS RESPONSE LEARNING
AND THE SECOND IS HOOKUP LEARNING. (AUTHOR) (U)

UNCLASSIFIED

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /OHK08

AD-690 592 9/2
WASHINGTON UNIV SEATTLE COMPUTER SCIENCE GROUP
THE WRITEACOURSE LANGUAGE: PROGRAMMING
MANUAL. (U)
DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 69 108P ZOSEL, MARY ; HUNT, EARL ;
SCHULDT, SHARON ;
REPT. NO. TR-69-1-3
CONTRACT: AF-AFOSR-1311-67, AF-AFOSR-1701-69
PROJ: AF-9778
TASK: 977801
MONITOR: AFOSR 69-1790TR

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 1 MAY 68,
AD-670 524.

DESCRIPTORS: (*PROGRAMMED INSTRUCTION, *PROGRAMMING
LANGUAGES), MAN-MACHINE SYSTEMS, INTERACTIONS,
CORRECTIONS, TIME SHARING, FLOW CHARTING (U)
IDENTIFIERS: WRITEACOURSE PROGRAMMING LANGUAGE, (U)
COMPUTER AIDED INSTRUCTION

WRITEACOURSE IS A LANGUAGE FOR PROGRAMMING MAN-
COMPUTER INTERACTIONS. THE LANGUAGE WAS ORIGINALLY
DESIGNED FOR WRITING COMPUTER AIDED INSTRUCTION
(CAI) COURSES, BUT IT CAN ALSO BE USED TO CONTROL A
REMOTE TERMINAL IN A VARIETY OF APPLICATIONS WHICH
INVOLVE DISPLAY AND EDITING OF CHARACTERS.
WRITEACOURSE IS NOT SUITED FOR APPLICATIONS WHICH
USE THE COMPUTER AS AN ARITHMETICAL CALCULATOR.
THIS MANUAL DESCRIBES THE FORTRAN VERSION OF
WRITEACOURSE IMPLEMENTED ON A PDP 10/8 TIME-
SHARING SYSTEM. (AUTHOR) (U)

CORPORATE AUTHOR - MONITORING AGENCY

•ADAPTRONICS INC MCLEAN VA

RESEARCH ON SYSTEMS DESIGN
METHODOLOGY. VOLUME I: LEARNING
AUTOMATA DESIGN METHODOLOGY.
AD-605 167

STUDY OF NEUROTRON NETWORKS IN
LEARNING AUTOMATA. VOLUME I:
LEARNING AUTOMATA AND THE
NEUROTRON.
AD-608 306

STUDY OF NEUROTRON NETWORKS IN
LEARNING AUTOMATA. VOLUME II:
COMPUTER SIMULATION.
AD-608 307

•AERONAUTICAL SYSTEMS DIV WRIGHT-
PATTERSON AFB OHIO

ASD-TR62 166
A STUDY OF GENERALIZED MACHINE
LEARNING
AD-277 493

ASD-TR7 820
INVESTIGATIONS IN COMPUTER-
AIDED DESIGN FOR NUMERICALLY
CONTROLLED PRODUCTION
AD-282 679

ASD-TR61 414
A SURVEY OF AUTO-INSTRUCTION
DEVICES
AD-268 223

TR7 820IR 138
INVESTIGATIONS IN COMPUTER-
AIDED DESIGN FOR NUMERICALLY
CONTROLLED PRODUCTION
(ASD-TR7 820)
AD-282 679

•AEROSPACE MEDICAL RESEARCH LAB WRIGHT-
PATTERSON AFB OHIO

AMRL-TR64 90
A FIELD EXPERIMENTAL STUDY OF
PROGRAMMED INSTRUCTION ON A
MANIPULATIVE TASK.
AD-608 296

AMRL-TR64 108
AN EVALUATION OF MULTIPLE
TRACKS IN A LINEAR PROGRAM.
AD-609 801

AMRL-TR64 114

LEARNING SET FORMATION IN
PROGRAMMED INSTRUCTION.
AD-609 802

AMRL-TR-64-128
REPETITION AND SPACED REVIEW IN
PROGRAMMED INSTRUCTION.
AD-612 738

AMRL-TR-64-129
PROGRAMMING METHOD AND RESPONSE
MODE IN A VISUAL ORAL TASK.
AD-614 014

AMRL-TR-65-43
A GUIDE TO PREPARING
INTRINSICALLY PROGRAMMED
INSTRUCTIONAL MATERIALS.
AD-617 740

AMRL-TR-65-78
FILMSTRIP TECHNIQUES FOR
INDIVIDUALIZED INSTRUCTION.
AD-617 607

AMRL-TR-65-79
AN EXAMINATION OF THE
FEASIBILITY OF MODULAR DESIGN FOR
AUDIOVISUAL AUTOINSTRUCTIONAL
EQUIPMENT.
AD-617 608

AMRL-TR-65-80
DESIGN CONSIDERATIONS
INFLUENCING THE SIZE AND COST OF
OPTICAL COMPONENTS IN
AUTOINSTRUCTIONAL DEVICES.
AD-617 609

AMRL-TR-65-222
AN EVALUATION OF PROGRAMED
INSTRUCTION FOR TEACHING FACTS AND
CONCEPTS.
AD-621 414

AMRL-TR-65-227
AN EXPERIMENTAL COMPARISON OF
AN INTRINSICALLY PROGRAMMED TEXT
AND A NARRATIVE TEXT.
AD-625 001

AMRL-TR-65-228
SOME INTERACTIONS BETWEEN
INDIVIDUAL DIFFERENCES AND MODES OF
INSTRUCTION.
AD-621 138

AMRL-TR-66-138
THE EFFECT OF INTRINSIC AND

AER-AIR

EXTRINSIC REINFORCEMENT
CONTINGENCIES ON LEARNER
PERFORMANCE.

AD-647 273

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AMRL-TR-66-142

DEVELOPMENT AND EXPERIMENTAL
EVALUATION OF AN AUTOMATED MULTI-
MEDIA COURSE ON TRANSISTORS.

AD-646 671

•AEROSPACE MEDICAL RESEARCH LABS
WRIGHT-PATTERSON AFB OHIO

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A SURVEY OF AUTO-INSTRUCTION
DEVICES

(ASD-TR61 414)

AD-268 223

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AMRL-P74

THEORY AND RESEARCH IN
PROGRAMMED INSTRUCTION.

AD-602 056

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AMRL-TR64 86

CURRENT STATUS OF THE
TECHNOLOGY OF TRAINING.

AD-608 216

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AMRL-TR64 89

PROGRAMMED INSTRUCTION - PAST,
PRESENT, FUTURE.

AD-607 809

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AMRL-TR-65-83

ADJUNCT TO SELF-STUDY FOR
AIRCREW REFRESHER TRAINING UNDER
OPERATIONAL CONDITIONS IN THE AIR
DEFENSE COMMAND.

AD-617 775

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AMRL-TR-67-151

MAINTENANCE TRAINING MEDIA - AN
ANNOTATED BIBLIOGRAPHY,

AD-673 371

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EFFECT OF CONFIRMATION PEEKING
AND RESPONSE MODE ON PROGRAMMED
INSTRUCTION.

AD-686 422

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TDR62 15

MOTIVATION AND THE AUTOMATION
OF TRAINING. A LITERATURE REVIEW

AD-277 287

•AIR FORCE AVIONICS LAB WRIGHT-
PATTERSON AFB OHIO

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AL-TDR64 108

RESEARCH AND INVESTIGATION ON
THE TRANSMISSION LINE ANALOG OF
SOME FUNCTIONS OF THE COCHLEA,

AD-600 742

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188

ON THE DESIGN OF A SIMPLE
CONDITIONED-RESPONSE MACHINE
(AFCRL-188)

AD-264 230

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AFCRL-64 87

SOME PROBLEMS IN INFORMATION
SCIENCE WITH EMPHASIS ON ADAPTATION
TO USE THROUGH MAN-MACHINE
INTERACTION.

AD-600 047

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AFCRL-64 87

SOME PROBLEMS IN INFORMATION
SCIENCE WITH EMPHASIS ON
ADAPTATION TO USE THROUGH MAN-
MACHINE INTERACTION.

AD-600 113

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AFCRL-65-731

CYCLOPS-2: A COMPUTER SYSTEM
THAT LEARNS TO SEE.

AD-624 152

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AFCRL-69-0108

THE TEACHABLE LANGUAGE
COMPREHENDER: A SIMULATION PROGRAM
AND THEORY OF LANGUAGE,

AD-687 746

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AFCRL-188

ON THE DESIGN OF A SIMPLE
CONDITIONED-RESPONSE MACHINE

AD-264 230

•AIR FORCE COMMAND AND CONTROL
DEVELOPMENT DIV AIR RESEARCH AND
DEVELOPMENT COMMAND BEDFORD MASS

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AFCCDD-TN60 51

USE OF A TEACHING MACHINE FOR
AIR FORCE ON-THE-JOB TRAINING IN THE
SAGE SYSTEM,

AD-419 916

•AIR FORCE INST OF TECH WRIGHT-
PATTERSON AFB OHIO SCHOOL OF
ENGINEERING

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AFIT-TR-65-1
EFFECTIVE TECHNICAL
COMMUNICATIONS, MECHANICAL
DESCRIPTION - EXPERIMENT II.
AD-631 228

•AIR FORCE MATERIALS LAB WRIGHT-
PATTERSON AFB OHIO

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ML-TDR64 235
THE MECHANICAL PROPERTIES DATA
CENTER OPERATION AND EXPANSION.
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•AIR FORCE OFFICE OF SCIENTIFIC
RESEARCH ARLINGTON VA

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AFOSR-64 2502
INFORMATION AND SCIENTIFIC
CREATIVITY,
AD-609 486

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AFOSR-65-0275 P1
A GENERAL ADAPTIVE MOTOR
LEARNING PROGRAM FOR A DIGITAL
COMPUTER, PART I, SECTIONS I AND
II.
AD-611 334

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AFOSR-65-0275 P2
A GENERAL ADAPTIVE MOTOR
LEARNING PROGRAM FOR A DIGITAL
COMPUTER, PART II, SECTIONS III AND
IV.
AD-611 335

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AFOSR-65-0291
A TYPICAL ADAPTIVELY CONTROLLED
EXPERIMENT IN PERCEPTUAL
DISCRIMINATION,
AD-611 542

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AFOSR-65-0326
LEARNING CONTROL SYSTEMS,
AD-611 925

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AFOSR-65-0582
TEACHING AS A CONTROL-
ENGINEERING PROCESS,
AD-618 003

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AFOSR-65-1091
1965 CONGRESS, INTERNATIONAL
FEDERATION FOR DOCUMENTATION (FID),
10-15 OCTOBER 1965, WASHINGTON, D.
C. ABSTRACTS.
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AFOSR-65-2283
AUTOMATIC ADJUSTMENT IN A
CONTINUOUS ENVIRONMENT,
AD-624 548

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AFOSR-65-2710
A UNIFYING MATHEMATICAL THEORY
FOR TRAINING LEARNING NETS.
AD-627 908

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AFOSR-66-0644
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INVESTIGATION OF LEARNING AND
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AD-631 634

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AFOSR-66-0825
MACHINE LEARNING FOR GENERAL
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AD-632 576

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AFOSR-66-1509
A HEURISTIC APPROACH TO
REINFORCEMENT LEARNING CONTROL
SYSTEMS.
AD-640 188

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AFOSR-67-0702
COMPUTER EXPERIMENTS IN MOTOR
LEARNING.
AD-648 334

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AFOSR-67-0703
COMPUTER PROCEDURES AND
PROGRAMS FOR THE AUTOMATION OF
MOTOR PROCESSES.
AD-648 267

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AFOSR-67-1089
UNSUPERVISED LEARNING, MINIMUM
RISK ADAPTIVE PATTERN
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AFOSR-67-2001
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AFOSR-68-0448
THE ADAPTIVELY CONTROLLED
INSTRUCTION OF A TRANSFORMATION
SKILL,
AD-666 344

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AFOSR-68-0514
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RECOGNITION APPLIED TO A CLASS OF
GAMES.
AD-666 673

AIR-AME

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AD-670 524

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NATURAL LANGUAGE LEARNING BY
COMPUTER.
AD-671 937

AFOSR-68-2084
A MODEL OF CONCEPT LEARNING,
AD-676 294

AFOSR-68-2156
THE WORTH OF INDIVIDUALIZING
INSTRUCTION.
AD-677 204

AFOSR-69-1051TH
ADAPTIVE DECOMPOSITION OF
MIXTURES: A UNIFYING APPROACH,
AD-686 598

AFOSR-69-1775TR
HOW ASSOCIATIONS ARE MEMORIZED.
AD-690 590

AFOSR-69-1790TH
THE WRITECOURSE LANGUAGE:
PROGRAMMING MANUAL.
AD-690 592

AFOSR-1242
A STUDY OF SUBJECT-CONTROLLED
PARTIAL CUEING IN PAIRED-ASSOCIATE
LEARNING
AD-265 070

AIR FORCE OFFICE OF SCIENTIFIC
RESEARCH ARLINGTON VA DIRECTORATE
OF INFORMATION SCIENCES

AFOSR-67-1247
MOVE THE INFORMATION, A KIND OF
MISSIONARY SPIRIT,
AD-487 794

AMERICAN INST FOR RESEARCH PITTSBURGH
PA

OPERATIONAL SPECIFICATION FOR
COMPUTER DIRECTED TRAINING IN
INTERMEDIATE QUERY LANGUAGE, MODEL
II, FOR SYSTEM 472L, U. S. AIR
FORCE HEADQUARTERS.
(ESD-YR-66-252)
AD-482 177

OTC QUERY LANGUAGE, VOLUME
XXIII. INSTRUCTOR'S MANUAL.
(ESD-TDR64 443 V23)
AD-605 335

OTC QUERY LANGUAGE, VOLUME XI.
WRITING QUERY LANGUAGE STATEMENTS.
(ESD-TDR64 443 V11)
AD-605 336

OTC QUERY LANGUAGE, VOLUME
XII. SIMPLE SUMS WITH THE AIR UNIT
TABLES.
(ESD-TDR64 443 V12)
AD-605 337

OTC QUERY LANGUAGE, VOLUME
VII. THE OPERATION AND CAPABILITY
OF THE COMPUTER RETRIEVAL PROGRAMS.
(ESD-TDR64 443 V7)
AD-605 338

OTC QUERY LANGUAGE, VOLUME X.
WRITING QUERY LANGUAGE STATEMENTS.
(ESD-TDR64 443 V10)
AD-605 339

OTC QUERY LANGUAGE, VOLUME IV.
THE OPERATION AND CAPABILITY OF THE
COMPUTER RETRIEVAL PROGRAMS.
(ESD-TDR64 443 V4)
AD-605 340

OTC QUERY LANGUAGE, VOLUME
VIII. WRITING QUERY LANGUAGE
STATEMENTS.
(ESD-TDR64 443 V8)
AD-605 341

OTC QUERY LANGUAGE, VOLUME IX.
WRITING QUERY LANGUAGE STATEMENTS.
AD-605 342

OTC QUERY LANGUAGE, VOLUME XX.
TEST ANSWER KEY.
(ESD-TDR64 443 V20)
AD-605 343

OTC QUERY LANGUAGE, VOLUME I.
PREPROGRAMMED TO USE THE QUERY
LANGUAGE SELF-INSTRUCTIONAL COURSE.
(ESD-TDR64 443 V1)
AD-605 344

OTC QUERY LANGUAGE, VOLUME
XII. TIME RECORD.
(ESD-TDR64 443 V21)
AD-605 345

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 OTC QUERY LANGUAGE. VOLUME
 XVI. ADDITIONAL PROCESS DIRECTORS
 AND A REVIEW OF RULES.
 (ESD-TDR64 443 V16)
 AD-605 346

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 OTC QUERY LANGUAGE. VOLUME II.
 AN INTRODUCTION TO THE 473L SYSTEM.
 (ESD-TDR64 443 V2)
 AD-605 347

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DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) DEFENSE DOCUMENTATION CENTER Cameron Station Alexandria, Virginia 22314		2a. REPORT SECURITY CLASSIFICATION Unclassified
3. REPORT TITLE USE OF COMPUTERS IN EDUCATION. Volume I		2b. GROUP
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Bibliography (July 1959 - June 1969)		
5. AUTHOR(S) (First name, middle initial, last name)		
6. REPORT DATE November 1969	7a. TOTAL NO. OF PAGES 398	7b. NO. OF REFS 338
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) DDC-TAS-69-62-I	
8. PROJECT NO.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) AD-697 300	
c.		
d.		
10. DISTRIBUTION STATEMENT This document has been approved for public release and sale; its distribution is unlimited.		
11. SUPPLEMENTARY NOTES Volume II, AD-862 400 (U-L)		12. SPONSORING MILITARY ACTIVITY
13. ABSTRACT This bibliography contains references to reports on computerized education and training systems. It also has pertinent references to the feasibility of programmed instruction in education, in training and in adaptive learning techniques. The computer-generated indexes are Corporate Author/Monitoring Agency and Personal Author.		

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